

"CARING FOR CREATION: SEEKING A SUSTAINABLE SOCIETY"

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What Is Sustainable Development?

At the 1992 UN Conference on Environment and Development in Rio, Principle 3 characterized sustainable development as “the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.” Although this statement is often paraphrased more simply as meeting the needs of the present without compromising needs of the future, there are a few key words in this statement which has important implications.

Note that this definition emphasizes “development,” as opposed to economic growth, and also “equity.” Both of these terms imply a fairness for all to share in economic prosperity, goods and services, while generally raising living standards and educational levels. The term “development” also often implies an improve in the quality of life and job vocation, in addition to material well-being.

The term “sustainable development” includes much of the concept of economic justice which is widely promoted by mainline church denomination and other advocacy groups. It also recognizes that our Created world is finite and we must be wise stewards of the natural resources and environmental systems which will sustain life for ourselves and future generations.

Why Are We Concerned With Sustainable Development?

When so much of government, business and the media is preoccupied on a daily basis with economic growth and economic statistics, it is vitally important for citizens and Christians to vision, promote and practice a broader and longer-term perspective. The first reason noted below is uniquely from the Judeo-Christian tradition. The other reasons stem from what history tells us has happened to civilizations in the past, and what present data, trends and projections tell us could happen in the future.

Stewardship and the Theology of Enough

During the past two decades in particular, much has been written by theologians and Christian ethicists about environmental theology, peace with justice and life in communion. In particular, we have come to recognize that God’s charge for humans to have dominion over Creation (Gen. 1:28-30) is that of a wise steward to take care of and maintain Creation for its own sake and for ongoing (i.e. sustainable) human use. One of the most powerful and empowering statements has come from Anglican Archbishop John Taylor in his “Theology of Enough” from his book Enough Is Enough. Taylor combines this environmental theology of stewardship with other important Biblical concepts - including “shalom,” “betsa,” “law of limited cropping” and “gleaning.”

The Hebrew concept of “shalom,” referred to a wholeness and harmony in relationship with God, God’s earth and God’s people. Hence a balance of these right relationships was required to achieve shalom. In contrast, to this balance was the Old Testament sin of “betsa” - an overwhelming, dominant greed which interfered with relationships with God, nature and other humans. The “law of limited cropping,” which required a field to

lie in fallow every seventh year and the practice of “gleaning,” which required that a portion of the crop be left for the poor to harvest, were related to the larger concept of shalom.

Ultimately, through his “theology of enough,” Taylor defines an environmental and social justice ethic. And in so doing he provides important and provocative guideposts for Christians to reflect upon what it means to practice Christian lifestyles and Christian living, such as his statement on “eucharistic living” (noted later).

Historical Perspectives on the Environment and Decline of Societies and Civilization

A second reason to be concerned with sustainable use of the environment and natural resource base stems from the lessons of history. At the present time, it is difficult to point to a truly sustainable society and economy. However, it is not difficult to find historical examples of the decline and impoverishment of civilizations which practiced non-sustainable development.

The impetus for our concern dates back thousands of years, as so well illustrated by Dale and Carter in their compelling book classic, Topsoil and Civilization. Two rather dramatic and insightful examples are the civilizations of North Africa, in the vicinity of ancient Carthage (now Tunisia) and Egypt, barely one thousand miles to the east.

At the height of its civilization and power, Carthage had over one million inhabitants and had an abundant food supply from the cultivation and grazing in the fertile lowlands between the coast and Atlas Mountains. Once Rome conquered Carthage and decided to make Carthage a colonial food supplier for the Roman Empire, a cycle of irreversible land degradation began, which impoverished people through history to the present. Rome opted for intensive cultivation with maximum yield per acre, and when the fertility began to decline, planted even more intensively to “make up” the declining yield. As productivity naturally declined even more, Rome spread cultivation and grazing into marginal and upland areas, triggering a cycle of erosion and declining productivity which ultimately ruined the land forever.

In contrast, civilization in Egypt persisted from the time of Cleopatra until the 20th century on a sustainable basis; the annual spring flooding of the Nile provided both water and a replenishment of soil nutrients. Ironically, now, with the 20th century construction of the Aswan Dam, this stable system is in decline. In addition to a decline in soil fertility, which now has to be supplemented by artificial soil fertilizers, there have been many other well-documented, severe impacts upon health, sustenance and ecology from the altered hydrology and the saltwater intrusion into the delta region.

Similar examples abound on virtually every continent from the time of ancient civilizations, through the Middle Ages and Renaissance Periods and to the time of the Industrial Revolution. Of course, here in the United States we are familiar with lamentable

examples such as the history of whaling, the buffalo and the Dust Bowl. Perhaps less familiar, though, is the fact that the seeds of our present concern for sustainable development in the United States were first sowed around the beginning of the 20th century after the historical settlement and expansion and settlement of the United States had occurred with reckless abandon, as described by Stewart Udall in another classic book, The Quiet Crisis.

Environmental Limits to Supporting Life on Planet Earth

The ability of humans, as well as other species, to survive and maintain a healthy existence is constrained by environmental limits which occur at several geographic scales. At a local level human activity often produces more air and water pollution than can be assimilated safely by airsheds and bodies of water. Another form of air pollution, photochemical smog, can cause significant human health problems and damages to agricultural crops and forests at regional scales. Acid precipitation can also cause widespread damages to forest and aquatic ecosystems at regional levels.

Human settlement and land use now causes large impacts upon forests and terrestrial ecosystems at both local and regional scales, as land is cleared, paved or eroded and habitat is lost. What is of unprecedented concern, however, as we approach the 21st century is the ability of humans to threaten truly global environmental limits. The combination of population growth, advanced technologies and economic demands has already caused global damage to the long-term stability of the atmospheric ozone layer, tropical rain forests and ecosystems, and ocean fish stocks. Steadily increasing emissions of so-called greenhouse gases (primarily carbon dioxide and methane) now threaten global atmospheric warming and related severe climatic impacts.

Trends and Implications of Growth

Our concern for exceeding the kinds of global environmental limits discussed above is underscored by current trends. At present the harvesting of tropical forests is at a rate of about 2% of total forest per year. If the present actual loss of 17 million hectares per year increases with population at a rate of 2.3% per year, and no efforts are made to protect the forests, the forests will be gone in about 30 years.

Figures 1 and 2 illustrate rising trends in greenhouse gas concentration and global atmospheric temperatures. Figure 3 demonstrates trends in the depletion of ozone layer concentration as concentrations of chlorine monoxide, a derivative of human emissions of chlorofluorocarbons, have increased.

The major concern for the future stems from the "compounding" effect of global population and economic growth. Just as interest compounds in a bank account, so, too, do rates of growth of natural resource demand and depletion and pollution. Considerable concern and controversy was raised in 1972 in the original study *The Limits to Growth*, which sought to simulate the impacts and interrelationships for environmental systems and social systems if the world continued in its existing growth path.

Figure 4 depicts the projection of what would happen if world society proceeds along its historical path as long as possible without major policy change. The authors observe, "Population and industry output grow until a combination of environmental and natural resource constraints eliminate the capacity of the capital sector to sustain investment. Industrial capital begins to depreciate faster than new capital can rebuild it. As it falls, food and health services also fall, decreasing life expectancy and raising the death rate."

Much of the controversy about these results stemmed from the widespread misinterpretation that these results were a *prediction* of what would happen in the future; at the same time other observers noted that things would not remain the same, that there would be technological improvements, an increase in the natural resource base, and a likely decline in the global population growth rate. We will return to a recently-updated projection that seeks to account for some of these other factors as we look towards the future.

First, however, it is important to examine in somewhat more detail the causal factors which threaten and sometimes exceed environmental limits at local, regional and global scales. The fundamental factors are contained in what is somewhat called the IMPACT FORMULA. By examining these factors, we will also gain insights into potential solutions for sustainable development which will improve economic lifestyles in a more equitable manner for all peoples without exceeding environmental limits.

The IMPACT Formula

During the early 1970s the well-known environmental researcher and activist, Barry Commoner, was interested in depicting what had happened during the post-war economy in the U.S. to cause what were alarming levels of air and water pollution at the time. Over an approximate 20 year period after WWII, he examined different sectors of the economy to estimate the change in emissions in the respective sectors according to the three factors in the following formula:

$$\begin{array}{rclcl}
 \text{Pollutant} & = & \text{Population} & \times & \text{Economic Good} & \times & \text{Pollution Per Unit} \\
 \text{Emissions} & & & & \text{Per Capita Consumption} & & \text{Economic Good} \\
 & & (\text{population}) & & (\text{economic affluence}) & & (\text{technology})
 \end{array}$$

Note, however, that the same conceptual approach can be used to examine the natural resource demand by an economic sector or good, i.e. demand for energy, forest product or land:

$$\text{Natural Resource Demand} = \text{Population} \times \text{Economic Good Per Capita Consumption} \times \text{Resource Input Per Unit Economic Good}$$

Originally, Commoner labeled the “interpretations” for these terms. The first term obviously is the effect of population. The second term, per capita consumption, he labeled as an “affluence” effect. The third term, the amount of pollution (or resource) per unit of production, he referred to as a “technology” effect. Although these interpretations serve as a convenient way of assessing fundamental factors, it should be noted that the real world is somewhat more complicated. Per capita consumption is also related to various cultural and social factors, such as values and education. And the “resource input” term is also related to economics, corporate culture and regulatory factors .

The demand for some products, and the related amount of natural resources used and pollution produced, tends to increase in conjunction with the population. Food, shoes, major appliances and housing are a few such examples. In the year 1995 the global population is about 5.8 billion, with a doubling time of about 40 years.

The demand for other products, such as steel and energy, tends to increase along with the overall rate of economic growth. In the U.S., with growth in GNP at 3% per year there would be a doubling of demand in 23 years. In ultra high-growth economies, such as China which has been growing at 12% in recent years, there would be a doubling of demand in about six years!

As significant as these rates of population and economic growth are, and as significant as the implications for natural resource demand and pollution are, changes in technology can and do have even more dramatic effects - such as the rapid growth in toxic chemicals, more powerful engines, ore processing, fish harvesting and forest cutting.

As we look to the future and become concerned with environmental limits, it is the combinations of the three factors which are of great concern. For example in developing countries, the combination of high rates of population growth coupled with high rates of economic growth leads to high natural resource demand and pollution generation,. In the developed countries, the combination of economic growth in conjunction with newer and “more demanding” technologies is particularly important..

Future Scenarios of Global Development

Earlier we discussed the original projection of the "Limits to Growth" researchers as to what would happen if the world continued along the path evident in 1968 (Figure 4). In the sequel *Beyond the Limits*, the researchers evaluated many different global scenarios of what *could* happen to future sustainability with respect to food production, land and natural resource availability, pollution production - and how these factors are interrelated to available capital, health services, life expectancy and standard of living.

In Scenario 5 it is assumed that beginning in the year 1995 many of the elements of sustainable development are begun to be implemented. In particular, assume that a stabilization of global population has begun; efficient technologies are used to reduce resource consumption, pollution and land degradation; and that global per capita consumption is \$350 in 1968 dollars (compared to \$260 in 1968 itself).

A couple of observations about these conditions and computer simulations should be made. First, the model inputs and outputs are global per capita averages, which in actuality vary greatly from place to place due to real conditions of affluence and inequity. Second, a per capita "limit" of \$350 compares with 1996 U.S. per capita consumption of *goods* of about \$3000 in 1968 dollars (excluding services).

Under these assumptions, however, the authors conclude (Figure 5) that the world is capable of "sustaining 7.7 billion people at a comfortable standard of living with high life expectancy and declining pollution until the year 2100." However, if the sustainability actions are postponed for 20 years - pending additional scientific knowledge, citizen education and global crises - then a lower population, lower nonrenewable resource base, more pollution and lower standard of living will result. Moreover, when we look beyond these global and per capita *averages*, we can assume global inequalities will be *vast*, both in terms of where the ambient environmental changes occur and how different countries will be able to cope with the diminished natural resource base and standard of living.

One other conclusion from the various scenarios is also particularly noteworthy. If the assumptions were changed to a 50% greater increase in per capita food consumption and an increase in per capita material consumption to \$700 (1968 dollars) - about \$2000 per capita in 1996 buying power - then the global systems *cannot* sustain the expected global population of about eight billion. That is, various interrelated natural and social systems would simultaneously spiral downward; insufficient natural resources and investment could not sustain the population size, standard of living, health and ambient environment.

Moreover, although an "equilibrium" might then be established at a lower global population and standard of living, the complicated assumptions, interactions and feedbacks make these speculations rather "murky." In any case, it is likely that there would be serious "irreversible" effects, including depletion of most tropical forests and ecosystems, topsoil, accessible fossil fuels; and potential changes to the ozone layer and global climate regimes would take many generations to reverse.

Elements of Sustainable Development

From examining the IMPACT formula, several insights are possible, including the obvious importance of population stabilization. We can raise the following questions. Is it desirable or feasible to effect behavioral changes to reduce per capita consumption of products? (second term) What technical means are available to increase efficiency and reduce the resource input per unit of product? (third term)

Table I lists several elements of sustainable development. At the top of the list is population stabilization, both for "advanced" and "developing" countries. Clearly, it is impossible to achieve an equitable and sustainable standard of living if there are ever-increasing numbers of people. There is also much agreement that possible sustainability will be enhanced by new, improved technologies; just as, ironically, the sustainability of life and life support systems are threatened by existing applications of technology. It should be noted, however, that "sustainable" technologies may be "low technology," as well as "high technology," but certainly must be "appropriate" technology to the context being considered. A sophisticated cellular phone using satellite communications may well coexist with a solar cooker in a rural village as part of a sustainable society.

Among the other elements, it is difficult to say which are more important than the others, but clearly some are more controversial than others and some will require relatively long periods of time, such as education and attitudinal changes. The subjects of ethics and culture make many people, including scientists, engineers and politicians uncomfortable; there is tendency to want to use technology and markets to solve all problems, and frequently, advertently or inadvertently, to subdue nature. However, many social scientists, environmentalists, theologians and ethicists believe that more fundamental perception and attitude changes are required - known as a "paradigm shift" - followed by social and cultural changes. Social ethicist Larry Rasmussen in his book *Earth Community, Earth Ethics* argues convincingly that without a fundamental social change in our attitude towards nature and each other that "sustainability" will remain an elusive goal.

A recent article from the National Centre for Sustainability (Victoria, British Columbia) stated that at the present level of global population, it would take three earth to provide the 'North American' standard of living and, at present rates of population growth, it would take ten earths by the year 2050. Of course, it is impossible to prove whether these statements are correct and to know what assumptions went into deriving such calculations. Nonetheless, the general implications are staggering - and underscore why a paradigm shift is important.

To reach that point, we must continue to progress with some of the other elements of sustainable development. For example, we must learn more about environmental limits - and how we are capable of changing environmental life support systems for humans and all of creation at local, regional, national and global scales of impact. And we must educate our children and ourselves about how we as individuals and consumers can act

in a more sustainable manner.

Because attitudinal and social changes generally take time, it is important that we pursue some of the other elements while we seek to effect more fundamental changes. For example, there are many opportunities throughout global societies to use and manage natural resources more efficiently both in the “end use” per capita consumption (second term above) and in the resource inputs (third term). Another element noted is “waste reduction and pollution prevention.” Increasingly, manufacturers are finding economic incentives to reduce and prevent through cost savings realized in process materials and energy and in environmental disposal costs. In other cases, there are market reforms required to provide market signals, which would guide economic behavior towards long-term, “lifecycle” costs and full-cost accounting. These reforms range from regulation to tax and subsidy policies to consumer education about “green products.”

“Win-win” strategies for both economic development and environmental management and integrated environmental systems management are two other elements of sustainable development that we can use now, which can be used to help solve multiple objectives and to gain political support for sustainability. As the name implies, by finding “win-win” strategies we take actions which meet economic needs but also contribute to economic and environmental sustainability. There are many such opportunities, perhaps limited by only vision and creativity, but some of the most important relate to energy efficiency, renewable energy, reuse and recycling of materials and agricultural and forest production. For example, more efficient use of energy through in lighting, appliances, motors, and buildings simultaneously reduces emissions of air several pollutants, reduces acid precipitation, reduces greenhouse gas emissions, saves consumer dollar expenditures and creates new jobs in energy-efficient goods and services.

In a somewhat analogous manner, by pursuing more integrated environmental systems management, we can focus on a complete industrial site, watershed or ecosystem and the multiple impacts upon air, water, land, flora and fauna and try to find management strategies which (1) prevent the solution to one environmental problem from contributing to another environmental problem and (2) present economic and practical tradeoffs which do not threaten the ambient environment.

Sustainable Communities and Community Development

Although the current conventional wisdom and media attention point towards continued economic globalization, there are dissenting voices and signs that renewed emphasis upon building sustainable communities and local economics are needed. Indeed, although this is not a treatise about globalization, there is increasingly evidence that globalization is not only destructive to nature, but is also bad economic policy. Historically, economic theory has taught that the means of developing an economy is to *integrate* the economy. That is, after an initial stimulus, the economy grows by meeting the needs of its citizens, which has a continual multiplier effect; as citizens are employed to meet consumer needs, their spending provides more jobs, and so forth.

From the perspective of a developing country, then, vast global exports are not required to develop; internal investment is required. In fact when such exports are based upon natural resource extraction, the future economic base to provide for the needs of the domestic population is diminished; and the profits tend to accrue to a relative few wealthy, who wind up spending and investing primarily outside the country.

Rasmussen observed that the original meaning of the word “economics,” as derived from the Greek *oikos* denoted a concern for household economics and the providing for the well-being of families and communities, as opposed to concern for the well-being of multinational corporations and international investors.

There is a “continuum” of what could be considered a “community,” ranging from a neighborhood to a rural farm community to a metropolitan area. Nonetheless, to be truly sustainable, the community will try to promote economic activity which will utilize local natural and human resources and renewable resources, improve equity for workers, utilize local wastes and byproducts, and maintain the environment life support systems and carrying capacity.

One emerging form of community economic development which seeks to meet some of these conditions is “industrial ecology” and its related industrial ecopark development. Similar to the way that nature processes “wastes” through the nutrient cycle and food chain - there are no wastes - the idea is to design an “industrial symbiosis” of economic activities such that the industrial wastes and byproducts and waste energy from a given industrial activity can be exchanged and used as inputs to other, adjacent industrial activities. The first such important development in Kalundborg, Denmark also integrated nearby agricultural activities into the exchange. Although largely neglected in conventional economic development planning, agricultural products provide a potentially important form of sustainable community development.

More generally, sustainable community development bears another important analogy to the natural ecology and its web of life. To the extent possible, sustainable communities are sustained by a series of symbiotic relationships among local firms, people and institutions. At the next level the community will develop symbiotic relations with the region, and then the state and nation. Trade flows would provide what cannot be provided locally. Similarly, international trade would be a means of obtaining what could not be obtained locally or at these other levels and *not* a means of appropriating the natural resource base *from* other countries and passing environmental degradation on *to* other countries.

Rasmussen notes several tenets which will be required to achieve sustainable community: *participation, solidarity, sufficiency, suffering, material simplicity, spiritual richness, responsibility and accountability*. Plus one other extremely important one, which he discusses in some detail: *subsidiarity*. This can be described as the means of participation, structure and accountability best suited at a particular scale for a particular place. Normally, whatever can be accomplished on a smaller scale, with local participation and local resources, should not be taken over by larger, or more distant

organizations, whether government or private enterprise (perhaps the opposite of merger mania and bigger is better).

There is some political irony here because in recent years our major political parties, perhaps one more than the other, have adopted the position that this principle applies to government, but not the private sector. That is government and its decision-making should take place at the lowest, most de-centralized level possible; but we should get out of the way of the private sector to become bigger and more powerful. It should also be noted, however, as Rasmussen does that the principle of subsidiarity also allows that some institutions and actions which require international collaboration and treaties should appropriately occur on the global scale; for example, marine ecosystem protection, forest protection, greenhouse gas and ozone.

Rasmussen notes an important example of sustainable community, the Emilia-Romagna region of northern Italy, which during the past 25 years has created de-centralized “flexible manufacturing network.” The region has 325,000 small firms, 90,000 of which are in manufacturing. Most manufacturing firms have fewer than five employees; 90% have less than 22. At the same time each tiny company draws upon the local pool of trained artisans and trade associations for support (part of the “symbiosis.”) Meanwhile, the region surged to become second in per capita income among the Italy’s 21 regions, in what *seems like* a reverse re-distribution of wealth. Of course, it should be noted that whereas this region has seemingly been quite successful at building community, much more information is needed about whether it is truly *sustainable* community.

Our Response as Christians

The messages of concern raised by the “Limits to Growth” studies should not be understood as *predictions* of what will necessarily happen in the future. Instead, as we have discussed with the elements of sustainable development and sustainable community, the point is to recognize the necessity that we must begin to act now in many ways to attain a sustainable future. As the ultimate proclaimer and steward for all of God’s creation, the church bears a special responsibility to work for a wholeness, or *shalom*, among all of creation and the Creator.

The Church Speaks Out

One area of change has been an emphasis on creation theology, which has largely developed as a body of theology since Earth Day 1970. Rasmussen notes that one aspect of what he calls the “integrity of creation” is its “divine source and certain intrinsic dignity.” Creation, including the non-human world, has worth as the work of a life-giving God. This understanding is in stark contrast to the nomenclature of economists, which refers to nature as “natural capital,” a term which denies any intrinsic worth and suggests that the non-human world is only valuable insofar as it sustains humans.

Jim Blackburn notes that the moral and ethical aspects of sustainability - concern for future generations, reverence for life and living things, and the meaningful integration of ecology and economics - are now accepted parts of Judeo-Christian theology. Virtually all church denominations are studying these issues and trying to respond and articulate our responsibilities as Christians:

SOUTHERN BAPTIST: "The Bible speaks repeatedly to the theme of divine ownership of the created order. Nowhere is that note more straightforward than in Psalm 24:1: 'The earth is the Lord's and the fullness thereof, the world and those who dwell therein.' . . . Divine ownership means that the Creator holds property rights to the entire creation . . . Human beings are simply sojourners on God's land. We never own the land. We are simply trustees of it. (from the pamphlet "The Earth is The Lord's", published by the Christian Life Commission of the Southern Baptist Convention)

UNITED METHODIST CHURCH: "In the Bible, a steward is one given responsibility for what belongs to another. . . . God chose to give human beings a divine image not so we would exploit creation to our own ends, but so we would be recognized as stewards of God. To have dominion over the earth is a trusteeship, a sign that God cares for creation and has entrusted it to our stewardship. (Luke 12:42 - "faithful and wise steward") (from Faithful Witness on Today's Issues - Environmental Stewardship, United Methodist Church, containing resolutions adopted in 1984)

EPISCOPAL CHURCH: "In response to this call [in Romans 8:20-24] to celebrate the beauty of the created order and to share both in the redemption of the Earth and in the vision of interconnectedness that undergirds it, we must speak in broader terms and more inclusive metaphors and images of where and who we are. We now see that we move about within organic nature, we do not stride atop inert matter. There are many scientists who would postulate Earth as a living organism with a degree of sacredness that we attribute to all living things. As humans we are part of a single organic Creation. . . (from The Episcopal Church in Communion with Creation: Policy and Action Plan for the Environment and Sustainable Development, September, 1990).

PRESBYTERIAN CHURCH: "We perceive God's new doing as an urgent call to earth-keeping. The call is a contemporary intensification of the ancient command to "keep" the "garden". But because the earth already is degraded, earth-keeping includes earth-healing - not just protection but restoration. . . . The appropriate, most useful norm for earth-keeping is sustainability. (from "Keeping and Healing the Creation", a report of the Presbyterian Eco-Justice Task Force, p. 63).

CATHOLIC CHURCH: "Respect for life, and above all for the dignity of the human person, is the ultimate guiding norm for any sound economic, industrial or scientific progress. The complexity of the ecological question is evident to all. There are, however, certain underlying principles, which, while respecting the legitimate autonomy of those involved, can direct research towards adequate and lasting solutions. These principles are essential to the building of a peaceful society; no peaceful society can afford to neglect either respect for life or the fact that there is an integrity to creation." (from Message of his Holiness Pope John Paul II, 1 January 1990).

(from Jim Blackburn, "Environmentalism and Spirituality: The Critical Nexus," 1994)

The Evangelical Lutheran Church in America, through several Church Social Statements, recognizes the important and interrelated dimensions of economic development, ecological and environmental protection, and fairness that are part of sustainable development:

“Sustainable growth and fair distribution are vital in creating economic justice. Both should enable all to participate in the economy. Global economic integration should enhance economic well-being among and within nations. Fiscal policy, business practices, investment policies and personal life styles, including patterns of consumption, should contribute to economic justice and the long-term sustainability of our planet.”

.... from ‘A Economy With Justice’ in “For Peace in God’s World,” a social statement

Also:

“The earth and its fullness belong to the Lord. No person or group has absolute claim to the earth or its products. *The principle of sufficiency means meeting the basic needs of all humanity and all creation.*

In a world of finite resources, for all to have enough means that those with more than enough will have to change their patterns of acquisition and consumption. Sufficiency charges us to work with each other and the environment to meet needs without causing undue burden elsewhere.

Sufficiency also urges us to care for arable land so that sufficient food and fiber continue to be available to meet human needs. We affirm, therefore, the many stewards of the land who have been and are conserving the good earth that the Lord has given us.”

We recognize that many factors run counter to sufficiency. We often seek personal fulfillment in acquisition. We anchor our political and economic structures in greed and unequal distribution of goods and services. Predictably, many are left without resources for a decent and dignified life.

We pray, therefore, for the strength to change our personal and public lives, to the end that there may be enough. “

.... from ‘Justice through Sufficiency’ in “Caring for Creation: Vision, Hope and Justice, a social statement

And:

“The sabbath and jubilee laws of the Hebrew tradition remind us that we may not press creation relentlessly in an effort to maximize productivity. *The principle of sustainability means providing an acceptable quality of life for present generations without compromising that of future generations.*

We recognize the obstacles to sustainability. Neither economic growth that ignore environmental cost nor conservation of nature that ignores human cost is sustainable. Both will result in injustice and, eventually, environmental degradation. We know that a healthy economy can exist only with a healthy environment, but it is difficult to promote both in our decisions.

The principle of sustainability summons our church, in its global work with poor people, to pursue sustainable development strategies. It summons our church to support U.S. farmers who are turning to sustainable methods, and to encourage industries to produce sustainably. It summons each of us, in every aspect of our lives, to behave in ways that are consistent with the long-term sustainability of our planet.

We pray, therefore, for the creativity and dedication to live more gently with the earth.” (from ‘Justice through Sustainability’ in social statement “Caring for Creation: Vision, Hope and Justice”)

The Church Acts

In addition to articulating the moral and policy dimensions of sustainability, the social statement “Caring for Creation: Vision, Hope and Justice” proposes various important actions for us as individual Christians, as a worshipping and learning community, and as a community of advocates to engage the public and private sectors. However, as an institution the church tends to reflect the existing culture rather than to lead. Hence there is much the church could reform in its own practices to promote a more sustainable society, including energy-efficient building design and energy usage, use of renewable resources, use of recycled materials and reduction of waste, land use planning and building site design, and “earth-keeping” ministries (which promote sustainable community agriculture). Moreover, more creative partnerships for community development and investments could help to bring about the “sustainable community” earth ethic discussed earlier.

One tool of analysis which congregations and church bodies can adapt to evaluate their practices is known as “lifecycle analysis,” perhaps a fitting piece of nomenclature for churches and Christians despite its industrial origins. The idea is to examine the inputs and outputs of operations and ministries to make operational practices more sustainable. In this way the church can also mentor and nurture its individual members to likewise reflect upon individual actions. Because in the final analysis the success or failure of sustainability will be dependent upon our individual values and the cumulative effect of how we individuals react to the challenge, we conclude this paper with our response as individual Christians.

As Individual Christians

The social statement adds:

“As members of this church, we commit ourselves to personal lifestyles that contribute to the health of the environment. Many organizations provide materials to guide us in examining possibilities and making changes appropriate to our circumstances.

We challenge ourselves, particularly the economically secure, to tithe environmentally. Tithers would reduce their burdens on the earth’s bounty by producing ten percent less in waste, consuming ten per cent less in non-renewable resources, and contributing the savings to earthcare efforts. Environmentally tithing also entails giving time to learn about environmental problems and to work with others towards solutions.”

Challenging, indeed. As we seriously reflect upon and address our personal lifestyles, it is fitting to return to Anglican Archbishop John Taylor. In his book *Enough Is Enough* he presented the notion of “eucharistic living” in order to strive for simplicity and community in Christian lifestyles and to reduce the tide of material consumption. Bishop Taylor recognized that as individuals we must fathom responses in our own personal ways depending upon our needs and our intrinsic differences as individuals.

Therefore, rather than to present a list of “do’s” and “don’t” or “thou shalt not’s,” he urges us all to consider a series of criteria to help us individually determine what consumption is meaningful to us and to promote eucharistic living:

1. Do I need it? How can we measure our needs? (by the standards of our neighbors or the poor)
2. Does it provide strong satisfaction?
3. Does it add to the quality of life?
4. Is there an alternative which will work as well?
5. Can I borrow it?
6. If I buy it, is it quality and “made to last”?
7. If I buy it, could I share it? (e.g. land, vacation home, tools, consumer goods)

Suggested References for Further Reading

Division for Church in Society, ELCA, *Give Us This Day Our Daily Bread: Sufficient, Sustainable, Livelihood for All*, A study on economic life, Chicago, October 1996, 128 pp

Division for Church in Society, ELCA, "Caring for Creation: Vision, Hope and Justice," A social statement, Chicago, Sept. 1993, 11 pp.

Larry Rasmussen, *Earth Community, Earth Ethics*, Orbis Books, Maryknoll, N.Y., 1996, 364 pp.

John Taylor, *Enough Is Enough*, Augsburg Publishing House, Minneapolis, 1977, 120 pp.

Jim Blackburn, "Environmentalism and Spirituality," October 1994 .

Steward Udall, *The Quiet Crisis*, Holt, Rinehart and Winston, New York, 1963, 209 pp.

D.H. Meadows et al., *Beyond the Limits*, Chelsea Green Publications, Post Mills, Vt., 1992, 300 pp.

David Korten, *When Corporations Rule the World*, Kumarian Press, San Francisco, 1996

Paul Hawken, *The Ecology of Commerce: A Declaration of Sustainability*, Harper Business, San Francisco, 1993.

United Nations World Commission on Environment and Development, *Our Common Future*, Oxford University Press, Oxford, 1987.

F. Douglas Muschett, ed., *Principles of Sustainable Development*, St. Lucie Press, Delray Beach, Fl., 1997, 176 pp.

APPENDIX

What Is the Spectrum of Creation Theologies? The View From Canberra (WCC, 1991)

Dominion (As in Mastery) Earth exists for us humans to form a world of our making. The earth is a stage, resource and waste container for human activity. The industrial and informational revolutions hold this view... a marriage of science and business. In 1990 at an Earth Day gathering in New York City, Cardinal O' Connor stated, "The earth was made for man, not man for the earth." Much of official papal teaching and its *Gospel of Life* propogates "dominion theology."

Rasmussen notes, however, that since the appearance of Lynn White's article in 1967, that this dominion/mastery theology has been on the decline.

Steward. Humans are the "trustees," tillers and keepers of creation; underscores a humility in which we see ourselves as part of the totality of creation. There is, however, a considerable discontent with the "steward" model in both religious and secular circles because of its anthropocentrism. Indigenous peoples were highly critical of the "steward" model, which they identify with those who come to "colonize" and "civilize."

Partner. "Humankind" is partner to "otherkind;" humans are de-centered. In WCC language the "integrity of creation" is utterly basic with justice, for humans and otherkind, and peace pursued as means to creation's flourishing and fulfillment.

Sacrament Celebrates the divine in, with and under all creatures, ourselves included. Moral code is presence, relationship, care and respect; that all creatures are fellow creatures. Sacrament theology is widely endorsed by indigenous peoples. A common critique, however, is that the "sacramentalist" vision can glory in what is, to the neglect of what ought to be. That is the unequal and corrupted power relations among humans, and between humans and other creatures.

Prophet/Covenant .This model is gaining stature in WCC circles. Seeks to grab people's attention: "The stark signs of our time is a planet in peril at our hands;" and calls for conversion, turning to God and away from destructive ways of life. Lifts up covenant in Genesis 9:12-13:

God said, "This is the sign of the covenant that I make between me and you and every living creature that is with you, for all generations. I have set my bow in the clouds and it shall be a sign of the covenant between me and the earth."

A common thread among all these theologies, but for the *Dominion/Mastery*, is an integrity of all creation and justice in relationships. This is the foundation for what Rasmussen poses as the challenge for sustainability: a true “earth community, earth ethic.”

Of course Rasmussen also develops and defines the earth ethic with a Lutheran view of cross and resurrection theology:

“The Lutheran variation here only insists on a steady focus upon the crucified, human Jesus as the place and way this power concentrates for the redemption of creation, as that relates to human knowing and human participation. This focus on Jesus, and not on nature apart from the revelation of a compassionate God, is essential in a very practical way. Without attention to creation crucified, most rich worlders will work to save nonhuman nature but not creation. They will sever environmental from social justice and treat the environment in ways that sustain their interests alone.” Or stated another way, cross and resurrection theology “insists that environmental justice is also social justice and that all efforts to save the planet begin with hearing the cry of the people and the cry of the earth together.”

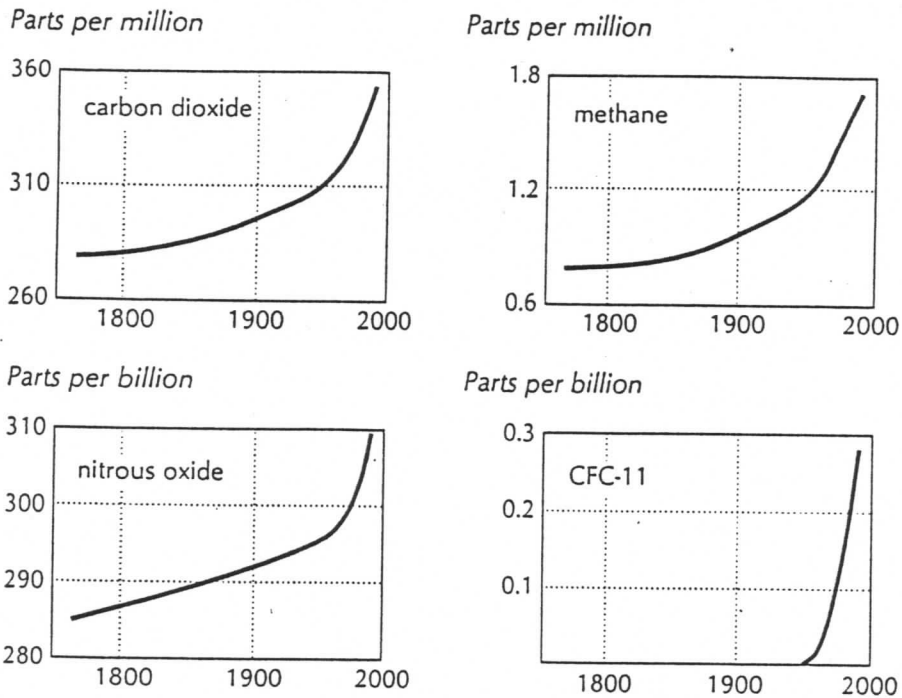
F. DOUGLAS MUSCHETT

Table 1

Elements of Sustainable Development

- *** population stabilization
- *** new technologies/technology transfer
- *** efficient use of natural resources
- *** waste reduction and pollution prevention
- *** "win-win" situations
- *** integrated environmental systems management
- *** determining environmental limits
- *** refining market economy (redefining)
- *** education
- *** perception and attitude changes (paradigm shift)
- *** social and cultural changes

Figure 1 GLOBAL GREENHOUSE GAS CONCENTRATIONS

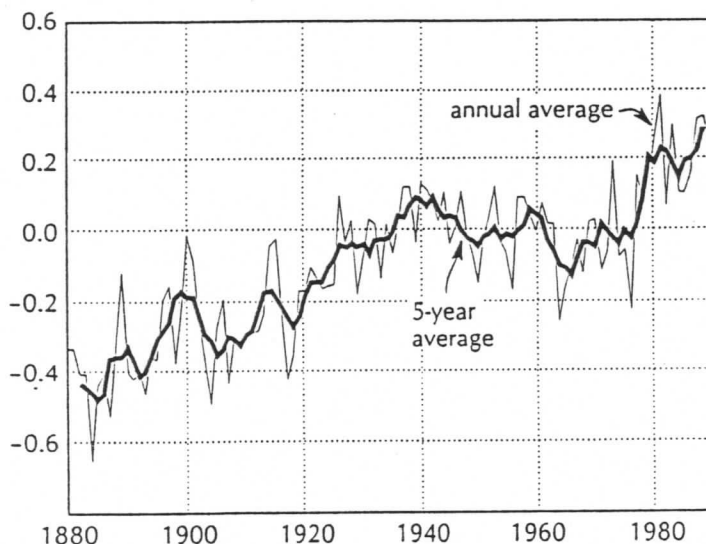


Carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons (CFCs) all reduce emissions of heat from the earth to outer space. Hence all serve to increase the temperature of the earth. The atmospheric concentration of these gases, except the CFCs which were only recently synthesized, has been increasing since before 1800. (Source: World Meteorological Organization.)

The Limits: Sources and Sinks

Figure 2 THE RISING GLOBAL TEMPERATURE

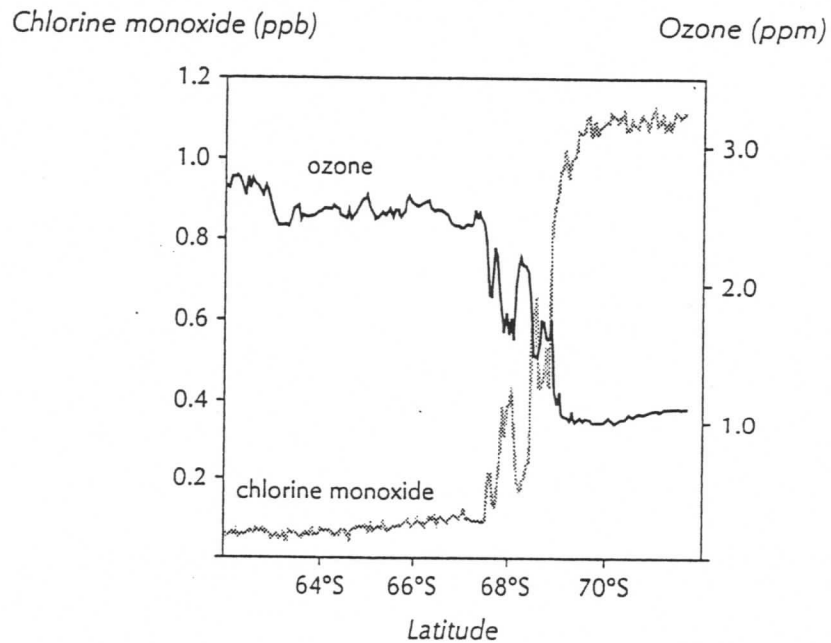
Temperature change (°C) compared to 1951-80 average



The causes and the long-term prospects for global temperature rises are still the subject of scientific and political debate. But there is little doubt that the global average temperature has been rising. The 1980s saw the six hottest years of the past century. (Source: T. A. Boden et al.)

Beyond the Limits

Figure 3 AS REACTIVE CHLORINE INCREASES, ANTARCTIC OZONE DECREASES



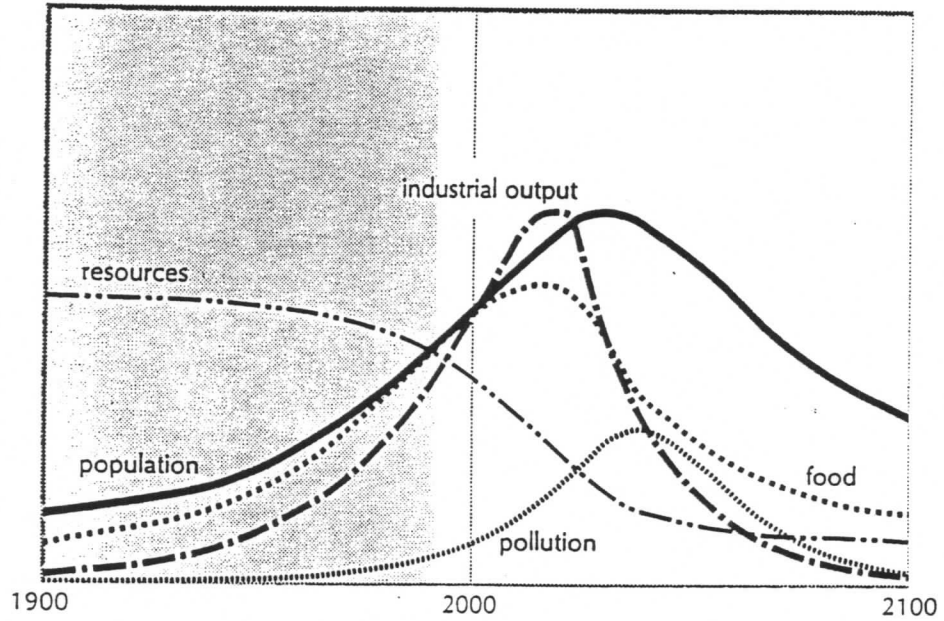
Instruments aboard NASA's ER-2 research airplane measured concentrations of chlorine monoxide and ozone simultaneously as the plane flew from Punta Arenas, Chile (53°S) to 72°S. The data shown above were collected on September 16, 1987. As the plane entered the ozone hole, the concentration of chlorine monoxide increased to about 500 times normal levels, while the ozone concentration plummeted. (Source: J. G. Anderson et al.)

The Dynamics of Growth in a Finite World

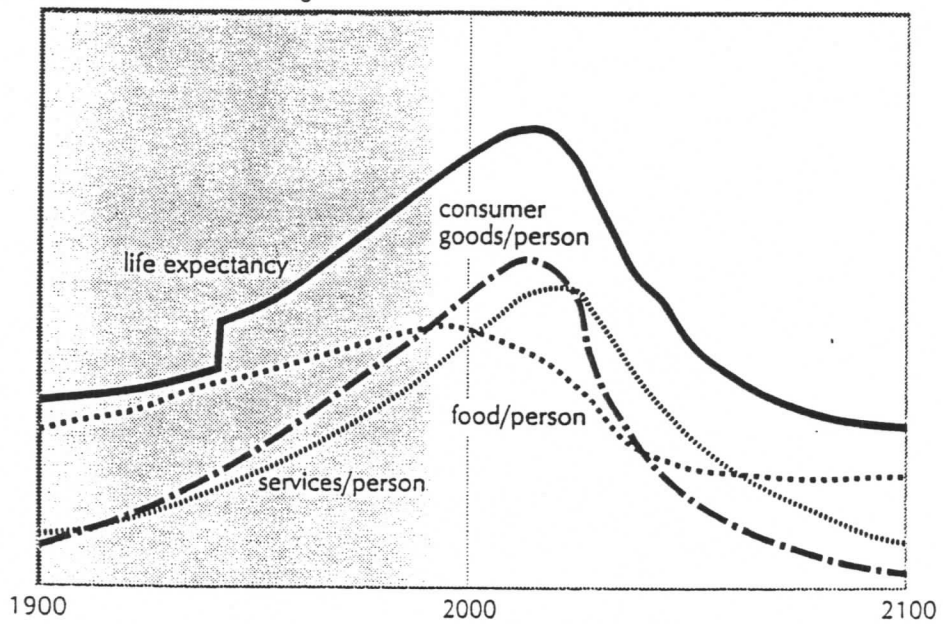
Figure 4

SCENARIO 1

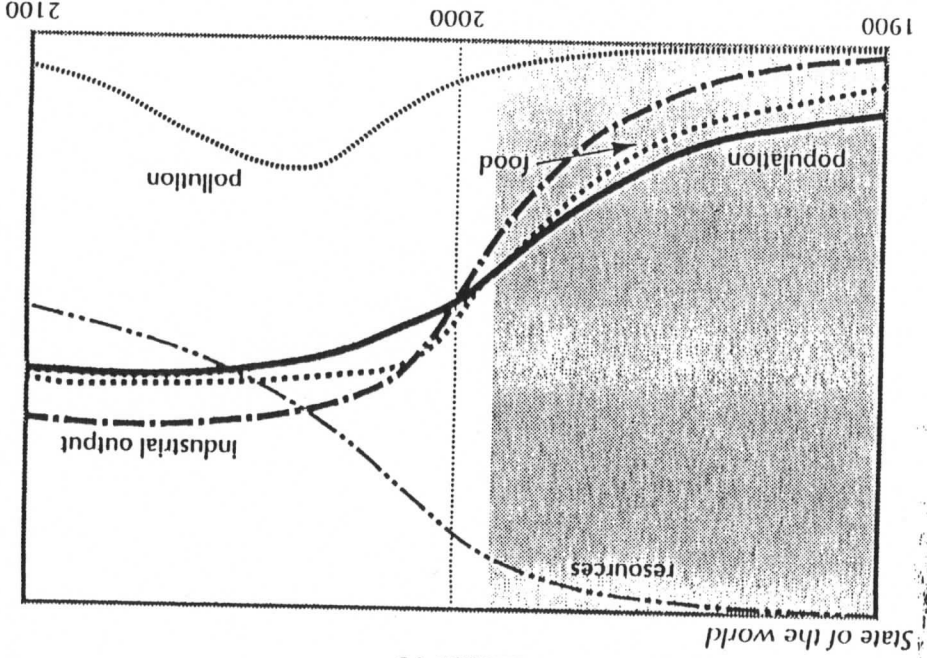
State of the world



Material standard of living



SCENARIO 10



Material standard of living

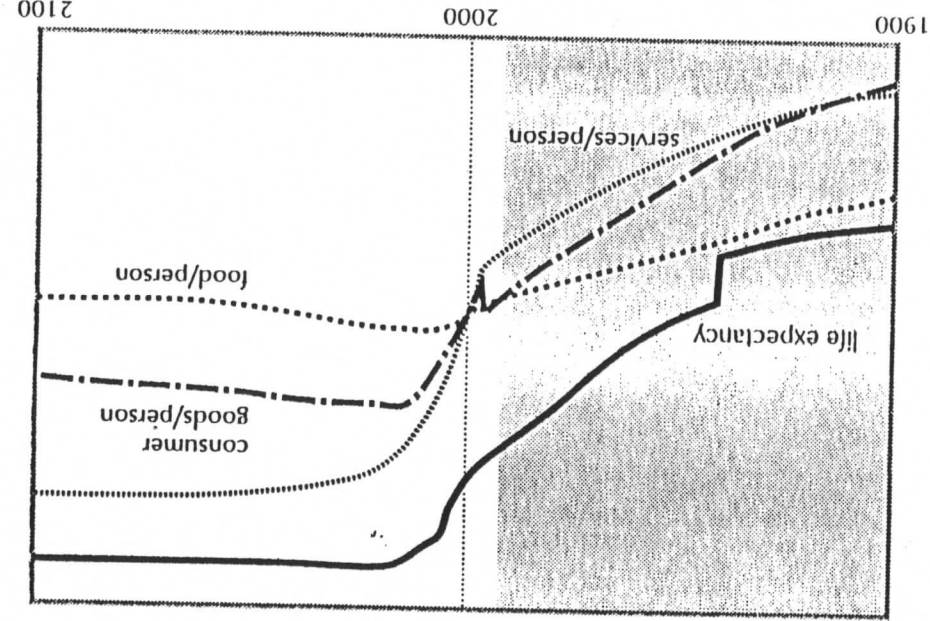


Figure 5

Scenario 10 STABILIZED POPULATION AND INDUSTRY WITH TECHNOLOGIES TO REDUCE EMISSIONS, EROSION, AND RESOURCE USE
ADOPTED IN 1995

In this scenario population and industrial output per person are moderated as in the previous model run, and in addition technologies are developed to conserve resources, protect agricultural land, increase land yield, and abate pollution. The resulting society sustains 7.7 billion people at a comfortable standard of living with high life expectancy and declining pollution until at least the year 2100.