

Climate Change and Global Economics

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“The scientific evidence is overwhelming: climate change is a serious global threat, and it demands a global response,” Sir Nicholas Stern warned in a report compiled for the UK government in 2006. Stern’s report assessed a wide range of impacts on climate change and economic costs and risks. There was a straightforward conclusion: the benefits of strong and early action far outweigh the economic costs of not acting. The world has to act now on climate change or face devastating economic consequences.

Responding to this pressing call for action, the objective of this paper is to explore the some of the direct and indirect links that climate change has with our economic realities. The paper is not intended to be an economic analysis but an attempt to impress upon concerned Christians the fact that the “devastating economic consequences” will need to be addressed by everyone. Does the church have a role? Yes, we do, and a major one. If we do believe that "All things were made by (Jesus Christ), and without him was not anything made that was made" (John. 1:8) then we must be the first to act.

The Stern Review has gained global media attention for its clear conclusions. Stern describes climate change as an “economic externality” and stressed that addressing this externality was urgent. (In economics, externalities are gains or losses that affect people who are not directly part of an economic activity. Global pollution creates a bad externality borne by all — a negative externality with a wide impact.) The report concludes that immediate mitigation no matter what the cost is the best economic choice. His central argument is that spending large sums of money now on measures to reduce carbon emissions will bring big dividends in the future.

Sir Nicholas Stern, a respected development economist and not one given to overstatement, strongly warned - “our actions over the coming few decades could create risks of major disruption to economic and social activity, later in this century and in the next, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th Century”. Global climate change poses a threat to the well-being of humans and the non-human environment through impacts on human health, lifestyles, biodiversity, productivity, and ecosystem functioning.

While this threat was global, the prospects are worst for the other poorer developing countries. And the message was clear. The richer nations must take responsibility with financial and technological help to face this future together. The Stern Review analyzed the economic costs and benefits of arresting climate change. But, that estimate was largely a commercial calculation as it does not include all of the costs of the “externality”. The total financial cost of the direct impact on human health and the environment from global warming, or the disproportionate costs on poorer regions of the

world are still hard to calculate. Poor countries are expected to be hit hardest by global warming and what these damages could be are yet to be put down in facts and figures.

As recently as June 2009, Alex Bowen, one of the members of the Stern Commission warned that the costs of climate change are going up. Bowen, the senior economist on the team that produced the seminal Stern Review, reminded us that “recent evidence about sea level rises, changes in water supply, and the social costs of climate change, has suggested the impacts of unrestrained climate change would be higher than 20 percent of GDP (Gross Domestic Product). We don’t have formal figures yet, but the revisions have been substantial.”

As much as we will discuss economic implications, this paper will not draw much attention to the facts and figures except those that are essential for the developing of my thrust. The reason - I am not one given to statistics! But I do accept the expert predictions that 5-6 degrees of warming is a "real possibility" for the next century and want to join with protagonists with a call for immediate action

The other issue avoided in this paper is arguments against any action. The negative attitude of some theological positions that criticize any attempts from Christians to get involved is appalling. Reading Paul’s epistles to Colossians and Ephesians, it is easy to conclude that the disciples have grown to see God in Jesus Christ as being Lord over everything. (Col. 1:20). This is very powerful in Ephesians 1:22 “God has put all things under the power of Christ, and for the good of the church he has made him the head of everything.” If this is the God we are committed to, then we have no other option but to become his representatives in our world today.

Interestingly, anti-environmental Christian groups have good company in a group of skeptics even outside the church. In a recent event, the second International Conference on Climate Change Environmentalists, Vaclav Klaus, the President of the Czech Republic said even mainstream environmentalists are less concerned about any crisis posed by global warming than they are eager to command human behavior and restrict economic activity. Klaus, who also is serving a rotating term as president of the European Union, received the approval of about 600 delegates when he attacked climate change protagonists with his claim "Their true plans and ambitions: to stop economic development, and return mankind centuries back."

Cost-Benefit Studies of Global Climate Change

Stern suggests that global warming could shrink the global economy by 20%. Whatever be the scale, climate change is a reality. Aggressive and immediate policy action is absolutely essential to stabilize and reduce total emissions in the coming decades. There is one commonly agreed measure: To lower carbon emissions we must cut back the use of fossil fuels and steps must be taken for substituting other energy sources. In general, economic models predict that this substitution would reduce Gross National Product (GNP) growth. It will be expensive. One major study showed GNP losses ranging from 1 to 3 percent of GNP for most countries, with higher potential long-term losses for coal-

dependent developing nations such as China. The question therefore is pertinent – Will the future benefits balance these immediate costs?

Two major economic studies on cost-benefit analysis of climate change arrive at differing conclusions. William Nordhaus proposed that the optimal policy strategy would be a relatively small reduction in greenhouse gas emissions below current projections. This will require relatively few changes in the carbon-based energy applications of current economic development. In contrast, William Cline recommends “a worldwide program of aggressive action to limit global warming” including drastic cutting back of carbon emissions well below present levels with no future increase.

We will not go into details. All that could be said is that while both the Cline and Nordhaus studies have used standard economic methodology, Cline’s approach gives greater weight to long-term ecological effects. These effects are significant in both monetary and non-monetary terms. In the long term, damage done to the environment by global climate change will have significant negative effects on the economy too and this is the fact we must take into account.

There is an underlying fact that must be taken into consideration. Any ecologically oriented economist would argue that the stabilization of the global climate should be the primary goal, rather than mere economic calculations of costs and benefits. We are not concerned just about maintaining our present lifestyles or productivity, but something much larger in magnitude. The fundamental issue is the stability of the physical and ecological networks that sustain our life. Merely calculating economic costs will not give us all that is needed to make life changing decisions.

Common goal but different responsibilities

But what do costs do we pay? Do the mega-polluters like Europe and US expect that smaller countries like Vietnam, Bangladesh or Kenya share these costs equally? The question has surfaced in many debates and the United Nations has played a pivotal role in making climate change an issue for all countries to address. The Kyoto Protocol (December 1997), for instance, in an international agreement linked to the United Nations Framework Convention on Climate Change, aimed at the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."

While the recent move for a “Clean energy” Bill in the US is laudable, its enigmatic stance over the past few decades has been questionable. For instance, in relation to the Kyoto Protocol the US had complained about the apparent unfairness in which the agreement did not commit developing nations to the same levels of reductions in global warming pollutants. However, the overwhelming consensus at Kyoto called for fairness to the developing nations. Very simply, the developing nations have not caused this pollution for the past 150 or so years, it was argued, and that it would be unfair to ask them to cut back at the same rate for the mistakes of the currently industrialized nations.

The Stern report concluded that if temperatures rise by five degrees Celsius, up to 10% of global output could be lost. The poorest countries would lose more than 10% of their output. In other words, everyone in the world would be a fifth poorer than they would otherwise have been. Even worse, these costs will not be shared evenly. There will be a disproportionate burden on the poorest countries

When the United Nations Framework Convention on Climate Change was formulated and then signed and ratified at the Rio Earth Summit (1992) by most of the world's countries (including the United States), the principle of common but differentiated responsibilities was acknowledged. In short, this principle recognized that:

The largest share of historical and current global emissions of greenhouse gases has originated in developed countries;
Per capita emissions in developing countries are still relatively low;
The share of global emissions originating in developing countries will grow to meet their social and development needs.
— The United Nations Framework Convention on Climate Change.

Similarly, the World Resources Institute (WRI) in a report (2003) highlighted that the industrialized countries are the biggest polluters:

In terms of historical emissions, industrialized countries account for roughly 80% of the carbon dioxide buildup in the atmosphere to date. Since 1950, the U.S. has emitted a cumulative total of roughly 50.7 billion tons of carbon, while China (4.6 times more populous) and India (3.5 times more populous) have emitted only 15.7 and 4.2 billion tons respectively. Annually, more than 60 percent of global industrial carbon dioxide emissions originate in industrialized countries, where only about 20 percent of the world's population resides. The environmental consequences of the policies of industrialized nations have had a large, detrimental and costly effect on developing countries — especially the poor in those countries, that are already burdened with debt and poverty

In the interests of fairness, Stern argued that the richer countries should take responsibility for between 60% and 80% of reductions in emissions from 1990 levels by 2050. Writing from Asia at a time when some of the largest economies and hence the largest polluters can be from within this continent, I can see the need for severe measures to be implemented regardless of the fairness expressed. Rapid development is bringing hundreds of millions of people out of poverty but the very same issues of pollution go unchecked. Along with this economic expansion there has been a rise in environmental pollution including greenhouse gas emissions. The developing countries of Asia now account for one-third of global emissions brought about by energy consumption, deforestation and land use. The reminders apply - If unchecked now, climate change will affect the economy in the future, and therefore stricter climate policies now should count as an economic benefit for the future.

If this be the case, merely spelling out different responsibilities and sharing the burden fairly is not sufficient. Will China and India be encouraged to commit the same mistakes as did the US and Europe? Will these mistakes the need be corrected later? Corrective measures must start now and that is why it is encouraging to note that India sees its

responsibility in ecological measures that are being addressed by the Government and NGO groups, although there is much more to be done.

The United Nations advised that the rich were not only to help provide means for the developing world to transition to cleaner technologies while developing, but be committed to “transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.” (The United Nations Framework Convention on Climate Change) I am sure this will include measures to educate and bring deeper levels of awareness that will arouse our sense of common responsibility towards a greener future.

As I write this article, preparatory talks at the Major Economies Forum representing the G8 countries and the emerging economies are being conducted in Rome. Members have expressed substantial differences that relate to the funding and transfer of technology to reduce carbon emissions as well as the targets to be set for overall reduction in emissions. There is the question over funding the investment needed to move to greener production systems and for adaptation. An estimated \$100 billion would be needed to move the developing countries to a green development mode, and that would include the expenditure on adaptation to climate change, forestry and changes in production technologies. The other disputed area relates to transfer of technology. Much of the current technology is protected by intellectual property rights and the Indian stand is that for green technology transfer, a way must be found for the developing countries to obtain them without payment of high licensing fees.

Justice must be meted out at this time. For the church, there is a deeper commitment that we must remember. Sir John Houghton, a member of the first Intergovernmental Panel on Climate Change (IPCC), in an address to the National Association of Evangelicals in Washington DC, in 2005 stated –

“A particularly strong challenge to our stewardship comes from the realization that the adverse impacts will fall disproportionately on the poorer nations, partially because of the nature of climate changes, especially climate extremes, in their countries and partially because they lack the infrastructure that would enable them to adapt. We, in the developed countries, have already benefited over many generations from abundant fossil fuel energy. Further, it is possible that some countries (for instance the United States) may continue to benefit for a while from positive impacts of increased carbon dioxide on the yields of some cereal crops. There is already a strong tendency in the world for the rich to get even richer while the poor get poorer. The impacts of human induced climate change will tend to further bolster that trend. Let me remind you of words of Jesus spoken after he had told the parable contrasting the faithful and unfaithful stewards, "For unto whomsoever much is given, of him shall be much required" (Luke 12:48). The challenge to our Christian churches and the opportunities with which they are presented are unmistakeable.”

Does climate change affect economic growth?

There is an ongoing controversial debate arguing that hot countries tend to be poorer with some sources producing estimates to prove that higher temperatures have large, negative effects on economic growth in the poor countries. We need to reckon with the reality that global economic inequality is going to be exposed even more if these estimates are true. This is an old debate. References to this phenomenon date at least to Ibn Khaldun's 14th

century Muqaddimah, cited in Montesquieu's 18th century *The Spirit of Laws*. Montesquieu notoriously argued that an "excess of heat" made men "slothful and dispirited", and has been confirmed in modern data.

In a recent paper, "Climate Shocks and Economic Growth: Evidence from the Last Half Century", the writers considered fluctuations in temperature worldwide over the last 50 years. As they studied temperature's effects on the path of national income three main results were identified. First, higher temperatures have large, negative effects on economic growth, but only in poor countries. Second, one can distinguish two potential ways temperature could affect economic activity: influencing the level of output, for example by affecting agricultural yields, or influencing an economy's ability to grow, for example by affecting investments or institutions that influence productivity growth. Higher temperatures, they claimed reduced the growth rate in poor countries, not simply the level of output. Since even small growth effects have large consequences over time, there will be very large impacts of permanent temperature increases. Third, temperature affects numerous dimensions of poor countries' economies in ways consistent with an effect on the growth rate. The paper stated:

"While agricultural output contractions appear to be part of the story, we find adverse effects of hot years on industrial output and aggregate investment. Moreover, we document that poor countries produce fewer scientific publications in hot years, which suggests that higher temperatures may impede innovative activity. Higher temperatures lead to political instability in poor countries, as evidenced by irregular changes in national leaders. Many of these effects sit outside the primarily agricultural focus of much economic research on climate change and underscore the challenges in building aggregate estimates of climate impacts from a narrow set of channels. These broader relationships also help explain how temperature might affect growth rates in poor countries, not simply the level of output." (Dell, Jones, and Olken 2008)

Apart from equitably sharing the damages caused by pollution, there is a consideration that needs to become an ethical responsibility in this whole climate change debate. We may not agree with the arguments abbreviated above, but will certainly see some truth in conclusions that will arouse our Christian commitment to a common fight for global survival. If we are enjoying the benefits of our global economy, we must also share in its inter-related responsibilities. We may argue about the levels of our commitments, but cannot ignore the gravity of the problem and the need to act.

Social costs

The Stern Report, we remind ourselves, described climate change as an economic externality. This is relevant to the issue of social costs. Very simply put - if there is a negative externality, then social costs will be greater than individual costs. Environmental pollution is a good example of a social cost. Who causes pollution? And who pays the costs of this pollution? It is clear that the total costs and all the costs of the damaging after effects are seldom borne completely by the individual polluter. All of society suffers the consequences. This is a negative externality with a large social cost. Let us also consider a positive externality. For this we look at providers of health and educational services. Their services indirectly benefit society as a whole but they only receive payment for the direct benefit received by the recipient of medicine or education. The

benefit to society of a healthy and an educated people is a positive externality. If there is a positive externality, then there are higher social benefits than private benefits.

NGOs, particularly if committed to demonstrating the compassion of Jesus Christ, must begin to think of their investments in such terms. Social costs and benefits are so-called because they are the total costs and benefits for everybody in society. Social costs are the sum total of all costs to society. Similarly, social benefits are the sum total of all benefits to society. Pollution of all kinds can harm human health, injure crops and forests, and damage life itself. Economists endeavor to analyze the social cost of these impacts. If climate change is to be given attention then the social costs of climate change play an important part of our larger economic considerations.

Addressing social costs calls for social action. We cannot put the burden on politicians and global treaties to reduce social costs and increase positive externalities. There has to be concerted action from everyone. We must start to think “socially” and “globally” and allow this to trickle down to making impacts on our lives. Society should place pressure on businesses and governments to think in wider terms of humankind and the environment at large. Climate change is a global concern and everyone must begin to act.

Conclusion

What commitment do Christians need to show as we handle this critical situation? First, a negative note. A strong attack on the biblical doctrine of creation was issued by Lynn White Jr in 1966, and this could be a good starting point to help challenge our apathy. He stated “Especially in its Western form, Christianity is the most anthropocentric religion the world has seen.” White argued that the biblical teaching that “it is God’s will that man exploit nature for his proper ends,” has largely contributed to our present predicament. This could be shocking to some Christians! The Genesis passages commanding Adam and Eve to “rule” and have “dominion” are shown to have led to an arrogant exploitation of nature. These texts have received much scholarly attention recently, and renewed attempts have been made to understand their meaning within their right context. But the burden rests heavily on us not only to correct any such impressions but to demonstrate Christlike stewardship to make a difference in our world.

On a positive note, Douglas John Hall in “The Steward” subtitled “A Biblical Symbol come of Age” develops the theme of a “steward” as an appropriate metaphor that has come of age. The word, he advised, must be “in dialogue with its worldly context” and needs to be sensitive to change. There are some powerful expositions of the theme he develops both biblically and contextually that we will find relevant to our discussion. In the latter part of his book, Hall addresses the issue of “politicization” of the term, implying that “stewardship” needs to be “rescued from sentimentality and private morality and articulated in ways that are realistically addressed to the hard political data of our endangered world.” (p144) There is adequate biblical support for considering the steward as much more than the small role played within the church.

Hall makes passing reference to Joseph, and I pick this up as an ideal illustration of Christian stewardship in relation to climate change. King Pharaoh, after Joseph had interpreted his dream, sought to find a wise and honest man to plan and administer the economy of the land during the seven years of abundance. Joseph, God's man was chosen. The plan was that sufficient provisions would be stored away for the seven lean years to come, thereby providing sufficient for the famine in the future. Following his own advice, Joseph planned ahead for the critical times and instituted a strict control over the entire food production of Egypt. The seven years of abundance began and Joseph had large storehouses erected all over the country.

Here was a success story in stewardship with long range plans while considering present day needs. Joseph could be the model Christian "Steward" to address our climate change crisis. The church and its members, the Christian community must become God's representatives to understand and address climate change and its drastic economic implications. Let's plan now to avert a future catastrophe.

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SOME ADDITIONAL NOTES

The Stern Review: Sir Nicholas Stern, Head of the Government Economic Service and Adviser to the Government on the economics of climate change and development, presented his report to the British Prime Minister and the Chancellor of the Exchequer on the Economics of Climate Change: Stern Review on the Economics of Climate Change (2006)

The International Conference on Climate Change is a conference sponsored by the Heartland Institute which brings together global warming skeptics who do not accept the scientific consensus that human-produced greenhouse gases, predominantly carbon dioxide, are causing the Earth's climate to warm. The Manhattan Declaration is a document from the 2008 Conference signed by scientists and researchers in climate and related fields, economists, policymakers, and business leaders present at the conference. The document calls for the immediate halt to any tax funded attempts to counteract climate change.

The Intergovernmental Panel on Climate Change (IPCC) is a scientific intergovernmental body formed to evaluate the risk of climate change caused by human activity. The panel was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP), both organizations of the United Nations. IPCC publishes special reports on the implementation of the UN Framework Convention on Climate Change (UNFCCC), which led eventually to the Kyoto Protocol.

United Nations Conference on Environment and Development (UNCED), also known as the Rio Summit, Earth Summit was a major United Nations conference held in Rio de Janeiro from June 1992. 172 governments participated, with 108 sending their heads of state or government.[1] Over 2,400 representatives of non-governmental organizations (NGOs) attended, with 17,000 people at the parallel NGO "Global Forum". The Earth Summit resulted in the following documents: Rio Declaration on Environment and Development, Agenda 21, Convention on Biological Diversity, Forest Principles and Framework Convention on Climate Change

US Clean Energy Bill. The U.S. House of Representatives narrowly passed a comprehensive climate change legislation in June 2009 after much debate. The historic American Clean Energy and Security Act (ACES) will now be voted on by the Senate. The Act will lead to millions of green jobs and place curbs on emissions that lead to global warming, calling for the U.S. to reduce its greenhouse-gas emissions by 17 percent from 2005 levels by 2020.

The Kyoto Protocol, 11 December 1997 in Kyoto, Japan, linked to the United Nations Framework Convention on Climate Change (UNFCCC or FCCC), is an international

environmental treaty which was produced with the goal of achieving legally binding commitments for the reduction of four greenhouse gases. By January 2009, 183 parties have ratified the protocol which was initially have been adopted for use. Under the Kyoto Protocol, industrialized countries agreed to reduce their collective GHG emissions by 5.2% compared to the year 1990.

WRI or World Research Institute claims to be “an environmental think tank that goes beyond research to find practical ways to protect the earth and improve people’s lives.” WRI was launched June 3, 1982 as a center for policy research.