

CHRISTIAN ECOLOGY LINK

CLIMATE CHANGE BRIEFING PAPER

Foreword

Climate change is one of, if not the, most crucial environmental issue facing humanity today. It is now widely accepted that global warming is occurring as a result of human activity, principally the emission of greenhouse gases from burning fossil fuels. It is already beginning to have major impacts on the world's climate, economy and agriculture and long term may threaten the continued existence of human life on earth. But the response to this threat from governments and individuals, including Christians, is by and large wholly inadequate. Why is this?

To reverse the trend will demand fundamental changes to current economic orthodoxy especially in the developed world and in the relations between the rich and poor countries. It will require far reaching lifestyle changes for all of us in the rich world; this will not be easy. But as Christians we are called to care for the earth and be a "light to the nations".

Changes of this magnitude require a real conversion – intellectual awareness is insufficient. The Christian Churches (and other world religions) have a vital role in providing a holistic, ethical and spiritual underpinning to the debate from which real action can result.

This briefing paper aims to help this process by summarising briefly some of the key background information on global warming and climate change, the scriptural basis for our concerns, why this is a crucial challenge for all Christians and critically what we all can do about it now. Inaction is no longer an option.

"... None of us is in a position to change the whole world, ... but we are able to do a certain limited amount.

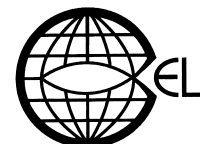
Our danger is that by dreaming to change the whole thing we are not available to do the limited thing which is possible for us."

Thomas Cullinan – Benedictine Monk.

Introduction

No one can fail to be conscious of the fact that the climate is changing. In the UK, Spring comes earlier, Winters are warmer and we appear to be more prone than ever to serious flooding. World wide we read of droughts, rising sea levels, and an increase in weather-related disasters.

The scientific evidence that climate change is occurring and the causes of this are, in spite of inevitable uncertainties about the detail, now very widely accepted by scientists and governments (apart from a few who often have rather dubious agendas.) Whilst it is incorrect and unhelpful to paint a picture of an imminent doomsday scenario resulting from climate change, it is even more dangerous to suggest that because of uncertainty we should do nothing now, or that the long term consequences of continuing to emit greenhouse gases unabated are not potentially catastrophic.



What is happening to the climate?

Before looking at climate change we should first consider what it is that has kept the climate relatively constant for tens of thousands of years. The earth absorbs radiation from the sun and re-radiates it back into space. The carbon dioxide, water vapour and methane, which are present in the atmosphere, absorb some of this re-radiation and act as a sort of blanket to maintain a remarkably constant temperature on earth. If the level of these gases increases, for example as a result of mankind's activities, this will result in increased average temperatures on earth.

The earth is currently in a long-term warming up phase following the end of the last ice age 20,000 years ago. This is a natural occurrence arising from variations in earth's orbit around the sun. Since the industrial revolution however, which started approximately 200 years ago, there has been a rapid and significant increase in average temperature completely outside any possible natural variation.

The increase has been most marked since the 1970s. Eight of the ten highest average global temperatures ever recorded have occurred during the 1990s, and it is likely that it was the warmest decade in the last 1000 years.

The Intergovernmental Panel on Climate Change (IPCC), which brings together under the auspices of the United Nations and the World Meteorological Organisation an international group of over 1000 climate scientists, has produced a series of reports in recent years. These are uniquely the most authoritative statements on climate change. The report released early in 2001 is by far the most worrying.

It notes that during the last 100 years the average temperature has risen by approximately 0.6 degrees Celsius and predicts that during the 21st century temperatures will rise far more. If, and it is to date a very big if, we succeed in achieving substantial reductions in fossil fuel consumption and increases in efficiency, the temperature rise would be of the order of 2.5 degrees Celsius. This may not seem to be a lot, but as the average temperature difference between an ice age and the warm period in between is only 5 to 6 degrees, this will be a change equivalent to "half an ice age" over a century.

If we fail to achieve the necessary reductions the situation will be far more serious.

A "business as usual" scenario, as apparently favoured by the USA and some other industrialised nations, would lead to increases approaching 6 degrees or even greater, with potentially catastrophic consequences.

Why is the climate changing so rapidly?

The IPCC, which was formed in 1988, has produced ever more detailed analysis and a series of authoritative reports on climate change. Their latest report states that:

"...there is new and stronger evidence that most of the observed warming ... over the last 50 years is attributable to human activities."

and that

"...temperature and sea level are projected to continue to rise throughout the 21st century."

The "human activities" referred to are principally the emission of greenhouse gases particularly carbon dioxide from the burning of fossil fuels. Over the past 200 years the level of carbon dioxide in the atmosphere has increased by approximately one third due to human activities. Unless urgent steps are taken to control emissions, by the end of the 21st century the level will be more than double that which applied before the Industrial Revolution. The average rate of warming of the climate is likely to be faster than at any time during the last 10,000 years.

Other contributory causes to global warming are destruction of forests, over-grazing, energy-intensive agriculture, and more methane from increased rice production arising from population growth. **But it should never be forgotten that far and away the biggest cause is the huge and continuing increase in fossil fuel consumption in the developed world.**

What are the effects of climate change?

It is the unprecedented speed of the change that gives most cause for concern. Ecosystems are not adapted to rapid alterations in climate so the effects are likely to be largely negative. Notable changes during the 20th century include a widespread retreat of glaciers, a 40 per cent decline in Arctic ice cover

and a rise in global average sea level of 15 centimetres.

In many parts of the world rainfall has increased substantially with a greater frequency of storms. In other areas there has been a marked increase in exceptionally hot periods causing drought and heat stress in vulnerable areas of the world such as sub-Saharan Africa.

It should be noted that there have also been beneficial effects for agriculture in some areas arising for example from the earlier arrival of spring and less frost in winter and overall food production might well be maintained. However the distribution of available food will alter markedly and in large areas of the world the shortfall in food production could lead to millions of "environmental refugees". These will be largely in the developing world.

The above phenomena are expected to increase in extent and intensity throughout the 21st century if there is not a substantial and sustained reduction in the emission of greenhouse gases. In particular, because of thermal expansion and increased melting of glaciers, global mean sea level is projected to rise by an average of half a metre which will have dramatic consequences for the huge numbers of people who live in vulnerable, low lying coastal areas, many of whom are amongst the poorest people on earth.

Longer term, the climate change models of the IPCC indicate that if we fail to stabilise greenhouse gas concentrations at levels significantly below those applying today, global warming will continue to contribute to sea level rises for thousands of years. Much of the Greenland ice cap would melt with sea level rises of several metres occurring.

Some experts also fear that as we brutally disrupt the delicate balance of God's creation an irreversible "run-away" and catastrophic climate change could occur. Never has there been a more urgent moment to invoke the "precautionary principle."

What is being done to combat climate change and what more needs to be done?

At the international level the key document is the Framework Convention on Climate Change which was agreed by 160 nations at the UN earth summit in Rio in 1992

The underlying principles of this agreement are; that uncertainty should not be a reason for not taking action now (the “*precautionary principle*”); the “*polluter pays principle*” ie that those who cause the global warming should carry the burden of reversing the effect and finally the “*principle of equity*” both between nations and between generations.

As is well known converting these broad principles into workable agreements has proved immensely difficult. The Kyoto Agreement of 1997 established a Protocol which although it is still in the process of being ratified, (with notably the USA and Australia refusing to ratify it so far), did nevertheless mark a very significant step. For the first time developed nations committed to reducing their emission of greenhouse gases (by 5 per cent by the year 2010 compared with 1990). This is a tougher target than might appear since the trend to date has been for year on year increases. But it is still wholly inadequate and many argue that Kyoto will not even deliver the promised 5%.

Most scientists agree that the *overall* global reduction of greenhouse gas emissions has to be of the order of 60 per cent if the climate is to be stabilised. If the developing countries are to increase their economic prosperity to give a decent standard of living to their people they will inevitably increase their emission of greenhouse gases. The developed world therefore will have to achieve cuts even deeper than 60 per cent, possibly up to 90 per cent.

Although figures such as this may seem totally unrealistic many detailed scientific and engineering studies have shown that the technology is available, including for example the widespread use of renewable sources for generating electricity and a whole range of energy saving techniques. The UK governments (March 2003) White Paper, committing us to a substantial increase in renewable energy, was a welcome sign of official acceptance of this.

But we cannot avoid the requirement for us in the developed world to adjust our lifestyles to a “low energy” way of living. (The holiday air flight as a “right” is simply not sustainable. We need to question the necessity of any flight we consider taking.) What is lacking therefore is not the technology; it is the political and moral will and the

existence of a deep conviction, amongst our leaders and the population as a whole, that there can and must be a radical change in the way we supply and consume energy and how we share this across the world.

Of course to bring about such radical changes will involve huge costs but indications are that the cost of adapting will be far less than the cost of the damage if no action is taken (and a small fraction of what the world currently spends on armaments). The short and medium term cost in human suffering and the mass extinction of so many of God's creatures as a consequence of failing to take action is incalculable. The long term consequences hardly bear contemplating.

How can we achieve 80-90% Reductions in Emissions?

Huge investments in renewables, and energy efficiency to reduce energy use, will be required if nuclear power is not to be part of the solution. Besides being one of the most expensive options for reducing greenhouse gas emissions, the problems of nuclear waste, safety, security and by-products give nuclear power no place in a sustainable society. In “Tomorrow's World - Britain's Share in a Sustainable Future”, Friends of the Earth lay out how this magnitude of reductions can be achieved.

All buildings must be built or upgraded to the highest efficiency standards, incorporating Combined Heat and Power as widely as possible. The Buildings Research Establishment suggests that cost effective energy efficiency measures in housing could cut domestic CO2 emissions by 40% while in the longer term, according to European Commission estimates, super-efficient housing could reduce energy consumption in the home to as little as 10% of current levels (a new build home in Scandinavia currently uses only 30% of the energy used by one in the UK). By 2050 buildings must become power houses as well as power users, with passive solar water heating on at least 50% of homes and 30-50% of current electricity demand being generated by roof-mounted photovoltaics.

Motor manufacturers must seriously address new car fuel efficiency with a 55 mpg new car average efficiency target by 2010 and 100 mpg average by 2050 as well as develop a new generation of electric

powered and fuel cell vehicles. But even with these targets the year-on-year increase in vehicle numbers must be turned into a 10% reduction per decade by shifting travel to public transport, cycling and walking and by reducing the need to travel at all.

The potential for harnessing energy from the UK's wind, solar and wave is enormous. According to the DTI onshore wind could theoretically meet 80% of our current electricity demand, and the offshore resource could supply 10 times this amount. Harnessing only some of this, and without building wind farms on SSSIs or big developments in Areas of Outstanding Natural Beauty and National Parks, renewables can achieve at least 50% of the CO2 reduction.

However, without spiritual conversion and a new heart, there is no hope of achieving 90% reductions.

What does Scripture say to us about this Challenge?

The Bible understandably does not deal directly with the issue of global climate change; such a concept was outside the experience of the authors of the Bible. But what it does set out with remarkable clarity and force is our duty of respecting and caring for creation and that by our sin of *hubris* (ie arrogant pride in our own abilities to understand and control the world) we risk bringing catastrophic consequences on ourselves and the world.

One of the many examples of Old Testament teaching is in Deuteronomy 11.13-17. In essence this points out that if we love and serve God and respect his creation (or as we would now say “live sustainably”) he will bless us with “early and late rain” so that the harvest will be good. But if we turn aside and worship other gods (that is unsustainable and inequitable consumption) the land will “yield not her fruit”.

The Psalms too echo this message (65, 95, 104, 148). The climate is God's gift to us and the whole earth community, allowing all life in its rich and wonderful diversity to flourish. To put this amazing richness and elegant balance at risk through our arrogant and thoughtless rejection of the gift by altering something as fundamental as our global climate may rightly be termed blasphemous. Through his bodily resurrection Jesus transformed our relationship

with the earth, which is to be treated with great reverence. We Christians are called to love all neighbours, to be healers and servants.

What have the Churches done so far?

Although not widely appreciated amongst the average churchgoer the World Council of Churches has been very active in all stages of the work leading up to Kyoto and beyond. Its work has been acknowledged by many governments and environmental NGOs, particularly for its stress on the ethical perspective and our responsibilities for the weak and the poor who will suffer most from climate change.

The leaders of many individual churches have published statements on our God given responsibility for the care of creation generally and the importance of action to combat climate change in particular. Within Europe the European Christian Environmental Network (ECEN), which brings together representatives from many churches including the UK, has been actively involved in mobilising the churches to be in a position to make effective and informed representations to European governments on the need to tackle this matter with much greater urgency. NGOs active in this area welcome the ability of the churches to reach a much wider audience through their congregations and they also welcome the ethical and spiritual contributions to the analysis.

Much has been done but it is clearly essential that this issue becomes far more central to the thinking and life of the churches today.

What can we all do now about Climate change?

The challenge to individuals, churches, governments and society overall is immense. The scale and nature of the changes demanded is nothing less than a conversion to a new way of living. Individually we can all begin to take those vital first steps and from then on constantly renew our commitment. Everybody can do the "limited thing which is possible" for them.

What follows is a very brief list of possible activities for individuals and congregations.

- *all of us can pray daily for the necessary "conversion" of ourselves, our fellow citizens*

and our leaders to do all in our power to combat global warming.

- *Operation Noah is CEL's programme that empowers individuals and churches to act on climate change. Get your church on board the "Ark".*
- *we can get our local Church to include regular prayers on this issue and highlight it at specific events such as harvest festival.*
- *encourage our local congregation to embark on the Eco-Congregation Scheme which provides invaluable material to help congregations tackle environmental issues many of which are directly related to Climate Change (EcoCongregation, ENCAMS, Elizabeth House, The Pier, Wigan WN3 4EX.)*
- *have a serious look at how we personally consume energy in particular in our homes and in travelling (e.g. unnecessary use of our car, non-essential air travel).*
- *buy "green energy", derived from renewable sources which is now widely available.*
- *link-up where possible with other groups campaigning on this issue and give them our active support and that of our congregation.*
- *let our MPs know that we consider this issue is not being addressed with sufficient seriousness and urge him/her to use influence with the government - perhaps we could do this from the congregation or the local Churches Together rather than just individually.*
- *buy goods which have minimum environmental impact for example supporting local producers which will help reduce the distance that food is transported.*
- *try to live more simply so that others may simply live.*

These are only a few suggestions for starters. They may individually or even as a whole seem inadequate against the scale of the problem. But it will be by the dedicated actions of individuals, motivated and inspired by deeply held convictions about the sanctity of all life on earth, that the necessary changes will begin to take place.

Resources

Contact Operation Noah on 01949 861516 or email noah@christian-ecology.org.uk or visit www.christian-ecology.org.uk/noah where you will soon be able to download the free "Ark in a Box" programme pack. It is available from CEL (postal address below) in printed form. Please send a donation or at least a 44p stamp.

Intergovernmental Panel on Climate Change (IPCC) documents, e.g. *Third Assessment Report: Climate Change 2002*, are available at www.ipcc.ch/pub/reports

Friends of the Earth has a comprehensive list of on-line resources, including references to many books on the subject. www.foe.co.uk/campaigns/climate/links.html

The Royal Commission on Environmental Pollution Report, *Energy – the Changing Climate*, 2000, available at www.rcep.org.uk/reports2.html

The Energy Saving Trust, 21 Dartmouth Street, London SW1P 9BP. Set up to help reduce CO2 emissions in the UK. www.est.org.uk

John Houghton, *Global Warming: The Complete Briefing*, Lion, 1994.

John Houghton, *Global Pollution and Climate Change*, JRI Briefing Paper, 2. www.jri.org.uk or by post from JRI room QW212, Francis Close Hall, University of Gloucestershire GL50 4AZ.

Aubrey Meyer, *Contraction and Convergence, The Global Solution to Climate Change* (Schumacher Briefing), Green Books, 2000. More on contraction and convergence at www.gci.org.uk

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Registered charity number 328744.

June 2003.