

World climate change a wake-up call

from Reggie Norton

1. Introduction

“ For fifteen years now, some small percentage of the world’s scientists and diplomats and activists has inhabited one of those strange dreams where the dreamer desperately needs to warn someone about something bad and imminent; but somehow, no matter how hard he shouts, the other person in the dream - standing smiling, perhaps, with his back to an oncoming train- can’t hear him. This group, this small percentage, knows that the world is about to change more profoundly than at any time in the history of human civilisation. And yet, so far, all they have achieved is to add another line to the long list of human problems - people think about ‘global warming’ in the way they think about ‘violence on television’ or ‘growing trade deficits’, as a marginal concern to them, if a concern at all. Enlightened governments make smallish noises and negotiate smallish treaties; enlightened people look down on America for its blind piggishness. Hardly anyone, however, has fear in their guts.”

(From “**Worried ? Us ?**” by Bill McKibben, *Granta* 83, Autumn 2003)

Five years ago I wrote to thirty of my friends after reading an article in *The Tablet* by Adrian Hastings entitled “Beware apocalypse” (See Appendix A) I worried about the state of the

planet we were leaving our children and grandchildren. I got a fair amount of replies. Some of my friends were also worried, but others thought that the situation was not as bad as made out in the article, or that, if it was, we would find a technological fix to put it right.

I took the problem to the Justice and Peace group of our local church and we undertook a serious study of the problem, tackling not merely the scientific angle but the political one, leading to the point of asking what we should be doing about it. The conclusion we reached was that the change occurring in the climate had been and was being affected by human activity and that we should get our parish involved in doing what we could on an individual and community basis to tackle the worsening situation.

Now, five years later, I am more worried than ever, and my worries stem principally from the fact that scientists have now much improved their models and are absolutely sure that we humans are the ones who are causing the unprecedented build-up of carbon dioxide in the atmosphere. They have warned us that we need to take urgent action to correct things as otherwise we face catastrophic consequences.

They have done their bit, now it

is up to us. We, the public, must give the government the mandate they need, and which I am told Tony Blair has asked for, to take such actions, nationally and internationally, to put us on a corrective path without any delay. I will be covering this in more detail below.

I want, in Bill McKibben’s words above, to ‘ put some fear in your guts’. But fear that will energise you, not make you give in. If you thought someone was about to set fire to your home you’d do something about it, wouldn’t you? You’d do your best to stop that person. Well, you and all of us, must take action to ensure our planet remains habitable. If we don’t, the planet will survive, but it will be too late for us; civilisation will have disappeared.

2. *The climate and global warming*

“God entrusted the earth to human beings ‘to till and keep it’. When this principle is forgotten and they become the tyrants rather than the custodians of nature, sooner or later the latter will rebel.” Pope John Paul II in 2000.

I’ve read many books recently about the weather, the climate and climate change. It is a very complicated subject. And has become more complicated as scientists have discovered more and more factors that

affect the weather and the climate. It is a fascinating subject and you will find a list of the books in the [bibliography](#).

An overall increase in the Earth's average near-surface temperature, global warming, is occurring. Scientists are by nature and training very cautious and it was only after they had improved computer models of the Earth's climate that were able to take all factors into account- solar activity, ocean currents, cloud cover etc – that they were finally prepared to say in the **1995 Report of the Intergovernmental Panel on Climate Change (IPCC)**, (of which more below), that the world was getting warmer and that the warming was being caused at least in part by human activity.

Then in their third report in 2001 it was stated that it was 'likely' that the warming was largely due to the rise of greenhouse gases produced by man.

In 2001 the scientists were already alarmed by the accelerating rise in the temperature but fairly recently I heard Sir Crispin Tickell say in a meeting on the subject that he had been told by the current chair of the IPCC that the temperature was now rising even faster.

Perhaps at this point we should quickly remind ourselves what greenhouse gases are and what contribution we make to them.

We know that the world has an atmosphere without which life on Earth could not exist. This atmosphere consists mainly of

nitrogen and oxygen but also contains small quantities of argon, helium, carbon dioxide, ozone, methane and many other trace gases. The atmosphere also contains water vapour, clouds and aerosols, which are a collection of airborne solid or liquid particles which are either natural or anthropogenic.

The short-wavelength radiation from the sun mostly passes through the atmosphere and reaches the Earth, which it heats. The long-wavelength heat radiation from the Earth's surface and lower atmosphere is partly prevented from escaping back into space by certain gases in the atmosphere, the 'greenhouse gases'. This keeps the Earth's surface at an average 15C, and is essential to maintaining life on Earth. However, this is a very delicate balance of the radiation coming in, and the heat radiation going out. By disturbing the amount of greenhouse gases in the atmosphere, the balance can be disrupted, and too much (or too little) heat is trapped, causing a change in the Earth surface temperature. The most notorious greenhouse gas is carbon dioxide, because its level has been seriously affected by emissions from human activity.

Man contributes to carbon dioxide by using fossil fuels like oil, gas and coal. But we also add other greenhouse gases such as methane, nitrous oxide, the chlorofluorocarbons (CFCs) and ozone.

As we add to these greenhouse gases what occurs is that we produce an effective warming of the surface of the

Earth and of the lower atmosphere because these gases absorb some of the Earth's outgoing heat radiation and reradiate it back towards the surface.

What has happened since 1750 is that the concentration of CO₂ in the atmosphere has increased from 280 parts per million by volume (ppmv) to 380ppmv and the average global temperature of the Earth has increased by 0.6C in the same period. (0.95C in Europe and 1.5C in Spain.)

This does not seem alarming at all but in order to judge this we must examine what has happened in the last century. And then we must look carefully at what scientists are telling us is likely to happen this century.

3. *The impact of the changing climate in the 20th Century*

" My youngest grandson, Jonah, was born two years ago. He is a real delight but his future, in a world heading towards massive climatic change, I have become extremely worried about. In fact, I am terrified." John Lawton, at the time head of the Natural Environment Research Council. *The Observer*, 30th January, 2005. In the latter half of the 20th century there have been a very noticeable increase in extreme weather events . More floods, more hurricanes, more avalanches, more forest fires, more droughts and as a result more famines. And the ten hottest years recorded have all occurred since 1990.

The developed world produces

about 60% of greenhouse gases yet the greatest impact of climate change has occurred in the developing world where 80% of the world live.

But there are also a whole series of events that have occurred and are still occurring in the world that we should take note of. I have chosen the ones below from those reported by the IPCC, by Mark Lynas in his book "High Tide", which looks at what climate change has already done to the planet and from other sources.

IPCC:

- Arctic air temperatures increased by about 5C in the 20th century-ten times faster than the global-mean surface temperature-while Arctic sea-surface temperatures rose by 1C over the past 20 years.
- In the Northern Hemisphere, spring and summer sea-ice cover decreased by about 10-15% from the 1950s to the year 2000: sea-ice extent in the Nordic seas has shrunk by over 30% over the last 130 years.
- Arctic sea-ice thickness declined by about 40% during late summer and early autumn in the last three decades of the 20th century.

- Alaska's boreal forests have been expanding northward by some 100 kilometres for every one degree Celsius of temperature rise.
- The major seal breeding grounds in the Bering Sea have seen fur-seal pup numbers fall by half between the 1950s and the 1980s.
- Precipitation over many mid- to high latitude land areas in the Northern Hemisphere has become more and more intense.
- Rainfall has generally declined in the tropics and subtropics of both hemispheres; when rain does fall, it is frequently so heavy that it causes erosion and flooding.
- In large parts of Eastern Europe, European Russia, Central Canada and California, peak stream flows have advanced from spring to winter, since more precipitation falls as

rain rather than snow, thus reaching rivers more rapidly than before.

- In Africa's large catchment basins of Niger, lake Chad and Senegal, total available water has decreased by 40%.
- Desertification has been exacerbated by lower average annual rainfall, runoff and soil moisture, especially in southern, northern and western Africa.
- Increased summer drying and the associated risk of drought have been observed in a few continental areas, including Central Asia and the Sahel.
- In the Alps, some plant species have been migrating upwards by one to four meters per decade; some plants previously found only on mountain tops have now disappeared.
- Cold- and cool-water fish are losing suitable habitat; warm-water fish are expanding their ranges in both northern and southern hemispheres.

- Changes in climatic variables have increased the frequency and intensity of pest and disease outbreaks as the related organisms shift their ranges poleward or to higher elevations.

- Almost two thirds of the glaciers in the Himalayan and Tienshan mountains have retreated in the past decade; Andean glaciers have also receded dramatically in the past several decades.

- Vast expanses of the oceans have warmed over the past 50 years; globally, sea-surface temperatures have risen in line with land temperatures.

- The global mean sea-level has risen by 10-20cm during the 20th century-ten times faster than the rate for the previous three thousand years.

- Seventy per cent of sandy shorelines have retreated over the past 100 years; 2-30 per cent are stable, while

less than 10 per cent are advancing.

- Seawater is seeping into freshwater aquifers and intruding into estuaries in low-lying coastal areas around the world, particularly on low-lying islands.

What Mark Lynas found on his travels:

- On average the Alaskan winter temperatures have shot up by six degrees Celsius in the last 30 years The permafrost is thawing and as a result houses tilt, roads have new undulations and sometimes wide cracks and crash barriers are contorted and buckled.

- Global temperature rises in the sea have caused the destruction of one sixth of all corals. The year 1998 was a terrible year with the bleaching and death of tropical reefs in many areas of the world and with 90% mortality in some places.

- The six rivers round the city of Wuwei in the Gansu Province of China have stopped flowing. The Yellow River, only gets to the sea for half of the year. Two thousand five hundred square kilometres of land turn into desert every year with the dust storms even reaching Beijing.

- The people of the islands of Tuvalu in the South Pacific are angry because their country is sinking under the waves because of the rise in sea levels due to global warming. The sea expands as it warms up, but the melting in the Arctic and the Antarctic also add to sea level rises. The government have started legal action to try to win compensation from the countries emitting most greenhouse gases. In the meantime New Zealand have agreed to give them a home as the waves cover their country and some are already moving there.

- Global warming could certainly be a contributing factor to the increase in storms and their intensity hitting the southern US seaboard. (

Hurricanes/cyclones in the last 30 years have become more powerful in all the world's oceans.)

- Visiting a glacier that his father had visited in 1980 he discovered that it had nearly completely vanished. Lima depends on water from the mountains above it but the glaciers there are melting very fast, three times faster than before 1980, and the city will run out of water unless the government invests \$120 million in building a tunnel to bring water from another catchment.

Some other facts:

▫ Global warming has cut rice harvests by at least 10% and possibly much more, scientists in the Philippines report, after studying 12 years of rising temperatures and falling yields. (Guardian July 1, 2004).

▫ The United Nations Environmental Programme in a report in 2004 said that 150 sea areas were now regularly starved of oxygen and were becoming major threats to already declining fish stocks, including those in Europe. "Humankind," they said "is engaged in a gigantic, global, experiment as a result of the inefficient and over-use

of fertilizers, the discharge of untreated sewage and the every increasing emissions from vehicles and factories."

▫ The Antarctic Peninsula is warming up rapidly, about 5 degrees Celsius over 50 years. The average extent of winter sea ice is about 20% less since 1973.

▫ On the 26th July, 2005 the heaviest rainfall ever recorded in India fell in one day in Mumbai, 37 inches/ 94cm.

▫ Officials of the National Weather Service estimated that in two weeks in early July, 2005 over 200 heat records were broken in the West of America, with Las Vegas tying its record of 117 F. Daytime temperatures in Phoenix, for example, remained near 110F for more than a week. During the heat wave the highest temperature recorded was 129F in Death Valley, California.

▫ Alaska's annual average temperature rose 3.3C between 1949 and 2003.

I could go on and on but I won't, though I should add that I have not even mentioned the problem of population and the ongoing destruction of natural habitats.

Many of the above effects of global warming are going to have a devastating effect on billions of people.

Most serious of all, in my estimation, is the question of food security. Nearly all of the glaciers in the world are melting. Many of these feed

rivers that provide most of the water for crops grown by billions of people in Asia and for their other needs. When the glaciers eventually disappear- and this process is proceeding apace- the rivers will have much less water and they won't be able to grow sufficient crops for survival.

It seems, to make matters even worse, that a problem known as "global dimming" (see [bibliography](#)) will adversely change the pattern of rainfall in Africa and Asia.

(The food security question is also affecting Europe. The Spanish Farmers Union reported in June 2005 that some drought-hit regions of Spain will lose more than 50% of their harvest this year. And the droughts that have affected Portugal and France have also resulted in the loss of a fair proportion of their harvests .)

If we think we have an immigration problem now imagine what it will be like when hundreds of millions of people start moving from where they are to where they think they can get some food to survive.

4. *What is likely to occur in the 21st Century*

"We have roughly 45 years (to stabilize the earth's atmosphere by 2050). And if we start NOW, not in 10 or 15 years' time, we have a chance of hitting the target. But we've got to start now. We have no time to lose." Lord Oxburgh, geologist and chairman of Shell. The Guardian , 15th June, 2005.

"Climate change is for real. We have just a small window of

opportunity and it is closing rather rapidly. There is not a moment to lose.....We are risking the ability of the human race to survive."Dr Rajendra K.Pachauri, chairman of the IPCC speaking to a conference of representatives of 114 nations in Mauritius in January, 2005.

The IPCC has projected that the average global surface temperatures will continue to increase to between 1.4 degrees centigrade and 5.8 degrees centigrade above 1990 levels by 2100. (Nothing like this has occurred in the last 10,000 years). They are due to produce another report in 2007 and we must watch out for this as they might well revise these figures upward.

The level of concentration of carbon dioxide (CO₂) in the atmosphere is now in 2005, 380 parts per million by volume (ppmv) having increased from 280 ppmv in 1750.

This is higher than it has been for 420,000 years, and probably the last 20 million years, Mark Lynas says in his book "High Tide." It has risen at a higher rate in the last three years, the rate having exceeded 2ppmv per annum; at a faster rate than the increase of emissions. No-one knows why...

In the statement of the joint science academies of 11 countries (UK, USA, Germany, France, Italy, Japan, Canada, Russia, Brazil, India and China) published on the 7th June, 2005 (see Appendix B) it is stated that over the next 25 years world primary energy demand is estimated to increase by 60% and that fossil fuels, which are responsible for

the majority of CO₂ emissions produced by human activities, are projected to provide 85% of the demand.

They go on to say: "Minimising the amount of this CO₂ reaching the atmosphere presents a huge challenge."

It seems to be accepted by the scientific community that we should not allow the average global surface temperature to exceed 2 degrees centigrade above the pre-industrial limit. But in the 20th century this average temperature has risen 0.6 centigrade already and we have seen above that the IPCC has projected that, unless something is done, the said temperature will continue to rise to between 1.4 and 5.8 degrees centigrade above 1990 levels by 2100.

A few years ago scientists were saying that we should not allow concentrations of CO₂ to exceed double the pre-industrial level of 280 ppmv, or say 550 ppmv. But the accelerating heating up of the planet which is occurring has made them change their minds and most scientists now think that it would be unwise/dangerous to allow concentrations to rise above 400ppmv, though some might say 450 ppmv.

But if the present figure of atmospheric concentrations of CO₂ is 380 ppmv and the rate of increase continues at about 2ppmv per annum then we will reach the 400/450 figure in between 10 and 35 years time.

STOP CLIMATE CHAOS, a coalition of many agencies, launched on the 1st

September, 2005 has as one of its aims:

"The UK government to make climate change a top international priority so that global warming is capped at a temperature rise of less than 2 degrees C. above pre-industrial levels. This will require global emissions to have peaked and be irreversibly declining by 2015."

So the sooner emissions peak and start coming down the better. But there is a catch. Even if we stopped all emissions today, atmospheric concentrations of CO₂ would still continue to rise for many years, as emissions do not create an immediate impact in the atmosphere but take 20 to 30 years to do so.

So, whatever we do, the effects of global warming will in any event get worse for many years to come and even if we manage to reduce emissions so that concentrations peak around 2030/40/50 we will have to live, and so far as we can, adapt to the impacts of climate change throughout the 21st century and beyond. But adaptation for developing countries will be more difficult because the impact on them will be worse and they have much fewer resources.

5. Other things that could happen

There are some other possible events that we should note because they could make matters much worse and they are likely to occur if we allow the average global temperature to exceed 2 degrees centigrade.

- (a) At present the circulation of the ocean currents (known as the thermohaline circulation) produces a warm current that keeps the temperature in Britain and Western Europe mild. As the current flows northward it loses its warmth and becomes denser and more saline. It then sinks after passing Greenland and this action keeps the circulation going. Because global warming produces more rain, melts the Arctic ice and the Greenland ice sheet, the salinity of the water is already decreasing and at some point, we don't know when, this could result in the disappearance of the warm Gulf Stream and temperatures in Britain could become 5C or more colder.

- (b) Whilst at present the IPCC project an increase in sea levels during the 21st century of between 9 and 88 centimetres which could be disastrous for people living in low-lying areas of South Asia and the small island states of the Indian and Pacific oceans, there is a possibility that this could become much worse if the melting of the

Greenland ice sheet accelerates as it seems to be doing.

- (c) There is much concern about the stability of the West Antarctic ice sheet, which rests on a rock bed well below sea level. If this were to collapse it would lead to a sudden rise in sea level of 5 metres or more. For hundreds of millions of the population of the world living on the coast this would be catastrophic.

- (d) The melting of the permafrost in Alaska, Canada and Siberia will, if temperatures continue to rise as they are at present, release methane into the atmosphere and as the greenhouse effect of methane is 7.5 times that of a molecule of CO2 this would be very serious, though its lifetime in the atmosphere is only 12 years, much less than CO2.

(*The Guardian* reported on 11th August, 2005 that an area the size of France and Germany combined, which covers the entire sub-Arctic region of Siberia and is the world's largest peat bog, is thawing and scientists fear that as it thaws it

will release billions of tons of methane into the atmosphere.)

- (e) Soils and forests which now absorb 25% of CO2 from fossil fuels will, with accelerated decomposition of soils and plants, eventually release CO2 rather than absorb it. (A recent report states that this is already happening in the UK).
- (f) The greatest danger of all would be the release of methane from the bottom of the ocean. If this happened it would spell the end of civilisation as we know it as there is no way we could control it and temperatures would rise dramatically. However, as most of the oceans are very deep this is unlikely to happen except in the Arctic where the ocean is shallow. (90% of the warming of the planet in the last 40 years, however has gone into the oceans it has recently been reported!)

In relation to the above it is important to understand what feedbacks in the biosphere mean. As changes occur in greenhouse gases in the atmosphere the processes set in motion will tend either to add (positive feedback) or to

subtract from it (negative feedback).

For example, as the Arctic ice melts less heat is reflected back into the atmosphere and more is absorbed. This is called a positive feedback, but it is of course bad because it will increase global warming. In contrast, of course, the negative feedbacks will be good!

When this process is very accentuated, for example if there were to be a release of methane from the ocean, the positive feedback would be so strong that there would be a runaway effect, more release of methane, more heat, more release of methane, more heat etc and this would be unstoppable.

6. *So what do the scientists say needs to be done*

The Prime Minister asked 200 of the world's leading climatologists and economists to meet in Exeter in February 2005 to discuss what was happening with the weather and what needed to be done to avoid dangerous climate change. He wanted to use their conclusions to persuade other governments of the seriousness of the situation during the UK's presidency of the EU and the G8 this year.

Margaret Beckett, the Minister for the Environment, opened the meeting by stating that a "significant impact" from global warming "is already inevitable."

The scientists and economists then said that some dangerous climate change was already taking place and catastrophic events once thought highly

improbable were now seen as likely. They said, however, that the worst could be avoided, that it would not be economically expensive but that governments had to take immediate action.

It was essential they said to keep the increase in global average temperature below 2C from pre-industrial levels if catastrophe is to be avoided and atmospheric concentrations of CO₂ below 400ppmv; though to go above for a short space of time would be OK so long as it was brought down quickly afterwards.

To do this the world would have to reduce emissions by 50% by 2050 with rich countries cutting this by 30% by 2020 from current levels, they said.

The economists said a delay of 10 years would be expensive because if action is put off the reductions required would be much greater and if delayed for 20 years the economic costs could be 3 to 7 times more.

They did say, however, that these reductions are possible using all existing technologies, including perhaps nuclear power. The costs would be about 1 per cent of Europe's GNP spread over 20 years.

So what we must ask now is whether the world is likely, as things stand at present, to act in time.

7. *What's happening internationally?*

"In terms of the CO₂ issue, I will explain as clearly as I can today and every other chance I

get that I will not do anything that harms our economy. Because first things first are the people who live in America. That is my priority." President George W. Bush 29 March, 2001.

There have been various United Nations Conferences on the environment but the most important of these the Rio Conference in 1992 resulted in the passing of the United Nations Framework Convention on Climate Change. It established what is known as the precautionary principle, which states that you don't have to absolutely prove that something adverse is happening to the climate before taking action to counter it.

The treaty set the goal of stabilising greenhouse gases at safe levels and committed the parties to adopting policies to slow climate change and adapt to its effects

In article 2 the treaty established that the reduction of emissions to reach a stable concentration of CO₂ in the atmosphere should be achieved within a time frame sufficient a) to allow ecosystems to adapt naturally to climate change, b) to ensure food production is not threatened and c) to enable economic development to proceed in a sustainable manner.

The treaty also established that developed countries must take the lead in combating climate change and the adverse effects thereof because they have contributed 80% of the additional amount of CO₂ in the atmosphere.

Industrialised (Annex 1)

countries were also committed to a non-legally binding aim of reducing their greenhouse emissions to 1990 levels by 2000. They had to submit regular reports as well as annual inventories of their emissions.

These richer Annex 1 countries were also committed to providing “new and additional financial resources” to developing countries to help them tackle climate change and to facilitate transfer of climate friendly technology.

The treaty came into force in March 1994 and most countries in the world have ratified it. There is a yearly meeting known as COP to review implementation of the convention.

But the convention had no mandatory targets because of the United States, who even threatened to boycott Rio altogether if it did. So as there were only voluntary agreements, countries did little and the treaty was ignored.

So at the first COP meeting in 1995 the commitments in the convention were declared inadequate and a new round of talks started. These eventually resulted in the Kyoto Protocol of 1997 which commits Annex 1 countries to individual legally binding targets to reduce their greenhouse gases by the period 2008-12 adding up to a total cut of 5.2% over 1990 levels but it was only last year that enough countries had ratified the Protocol to bring it into operation in February 2005, when it should have started in 2002, ten years after Rio.

This year marks the start of talks to put together a really effective treaty by 2012.

The Intergovernmental Panel on Climate Change (IPCC) was brought into existence by the United Nations Environment Programme and the World Meteorological Organisation in 1988 and is open to all members of the UN.. These scientists, numbering thousands, and representing countries, have produced a series of reports which constitute the basis for elaborating policy. Their next report is due in 2007 and will be the most important document for the renegotiation of the Kyoto Protocol in 2012.

It is quite clear that between now and 2012 it is essential to construct a treaty that is going to be global, encompassing all developing and developed countries. We will know if any progress is being made when the parties to the UNFCCC meet in Montreal at the end of November, 2005.

It is also absolutely essential that such a new treaty should be equitable. There are various ways that this could be accomplished, but the most well-known of these, supported already by many countries, is known as Contraction and Convergence. (See [bibliography](#)).

The World Bank describes Contraction and Convergence as follows:

“Contraction and Convergence is a science-based global framework whereby total global emissions are reduced – i.e. contraction - to meet a specific agreed target, and the per

capita emissions of industrialised and developing countries converge over a suitably long time period, with the rate and the magnitude of contraction and convergence being determined through the UNFCCC negotiating process. It applies principles of precaution and equity; principles identified as important in the UNFCCC but not defined.”

So there is not much time to bring this about. The United States has not signed the Kyoto Treaty and as it produces about a quarter of the world’s emissions of greenhouse gases it is essential it comes on board in 2012.

Just as important is the agreement to a new treaty by China, India, Brazil and Mexico as well as other developing countries because their emissions have been growing very rapidly in the last 20 years and without them on board the necessary reduction of emissions could not be accomplished.

8. *What's been happening nationally ?*

The Royal Commission on Environmental Pollution’s Report of 2000 stated that emissions of greenhouse gases had to be reduced and the government’s goal of reducing emissions by 20% from their 1990 levels by 2010 was a major step in the right direction.

The government should also adopt a strategy, they said, which would put the UK on a path to reducing CO2 emissions by some 60% from current levels by 2050. But this

recommendation was based on the assumption that it was fine to set an upper limit for CO2 concentrations in the atmosphere of 550ppmv. (If this has now become 400ppmv then we will need a cut of 80% by 2050.)

They then went on to set out a series of recommendations about how this might be achieved.

The government of Tony Blair accepted the report and has taken a lead internationally in advocating strong measures to control climate change. But the fact of the matter is that emissions in the UK have risen by 2.2% in 2003, by 1.5% in 2004 and by 2.5% in the first six months of 2005. And since 1997 emissions have risen by 5.5% so that it seems we will not now even meet our Kyoto Treaty target of 12.5% reductions by the period 2008-12.

The government is consequently considering the following actions according to a report in the Guardian of April 1, 2005:

- A review of wind power and other renewables to see if they can deliver more CO2 savings.
- Large scale investment in the next generation of tidal, wave and solar power.
- Consideration of whether a new

generation of nuclear power stations is needed.

- Tax breaks and subsidies for energy efficient household appliances.
- New building regulations to make houses and businesses more energy efficient.
- Carbon taxes, including rises in fuel duties.
- A reduction in prices of alternative fuels and subsidies for bio-diesel made from oil seed rape.
- To the above must be added sequestration of CO2 from power stations under the sea in old, empty oil wells.

The Prime Minister made Climate Change, with Africa, the two principal matters for discussion at the G8 summit in Gleneagles in July, 2005. He himself said: "To acquire global leadership on this issue Britain must demonstrate it first at home...".

But the increase in CO2 emissions in the last two years, the failure to produce an ecologically friendly transport policy plus the governments plans to build new runways at Heathrow, Stansted and Gatwick undermine his claim to lead the world boldly on climate change.

9. *So where does that lead us ?*

Let's go over some of the points I've already covered:

1. The world is warming quicker than the scientists thought five years ago.
2. The window of opportunity to act and slow and reverse global warming is narrowing because concentrations of CO2 in the atmosphere are accelerating. The figure for a stable level of concentration has dropped from 550ppmv to 400ppmv and we must prevent the average global surface temperature of the planet from exceeding 2 degrees centigrade above the pre-industrial figure.
3. All that has so far been agreed internationally in the Kyoto Protocol is utterly inadequate in a total reduction of only 5.2% of emissions

below 1990 levels by the period 2008-12 and in any case the biggest producer of emissions, the USA, is not party to this agreement.

4. Failure to have in place by or in 2012 an adequate agreement to replace the present Kyoto Protocol would spell disaster for mankind as the temperature of the earth would rise to such an extent that it would probably be impossible, to reverse it in the short time available. (Indeed some think it is already too late!)

10. *The obstacles to achieving an adequate agreement in 2012*

"If business and governments don't get their act together soon on global warming, the extraordinary economic machine we have created is going to wreak such havoc on the Earth's systems- both natural and social- that today's disruptions by terrorists will look like child's play. The result will not be good for business, or the rest of us. In short, business needs government action on climate, now." James Gustave Speth, Dean of the Yale University School of Forestry and the Environmental Studies. World Watch Magazine, August 2005.

Unfortunately there are many obstacles to achieving an adequate treaty in 2012. The Prime Minister has called climate change the biggest problem facing mankind. It's more than that. It's the greatest problem that mankind has ever faced. There is no parallel to the present situation. All the planet is affected by climate change. CO2 does not just hang above the countries that produce it with their use of fossil fuels. We in the developed world are, through our emissions, creating problems in the developing world that, on the whole, they do not have the resources to counter or adapt to.

In the last thirty years we in the developed world have gone all out to increase our standards of living. The energy needed to do this has been produced by fossil fuels. If you look at a graph of the use of fossil fuels in the developed world and of the rise in the GDP of the countries of the developed world you will see that they more or less run parallel.

Economically it seems that the way we've ordered our world requires there being continuous economic growth. If we are not achieving this growth there is panic, fear of unemployment, the threat that our public services will start to deteriorate, inflation, bankruptcies in business, repossession of houses by mortgage companies and banks, etc., etc.

Yet, in the same thirty years many developing countries have had to struggle to keep their peoples from starving and our developed economies have not done nearly enough to help, giving little aid,

maintaining an unjust trade structure and making them pay over and over again in interest for debts they have incurred, probably unnecessarily, under pressure from banks and international institutions.

But to solve the problem of climate change we are going to have to have global agreements. We are going to have to ensure we play fair with poor countries. We are going to have to have a world where we all recognise that we are equal members of one and the same family whatever our race, colour or creed.

The United States and all the rest of the developed world are going to have to admit that the resources of the world are limited and that we can't just work to maintain the living standards of our own citizens if that means that we will at the same time be denying the people in the developing world the chance to have a decent standard of living with adequate food, medicines, shelter, clothing and schooling.

There is the chance, therefore, that if the world tackles climate change as one united family that we will eventually end up with a fair and decent world .

What a wonderful thing that would be! So that is the first challenge, for all countries to work together to defeat climate change and to achieve a better world.

It is quite clear, however, that if we don't work together and each country just pursues its own interests we have no chance at all of defeating climate change. For a brief period we will see an

improvement in our living standards and then, as the devastating effects of climate change kick in, we will all go down slowly together!

And by the end of the century mankind will probably have completely disappeared from the face of the earth.

Dr Rowan Williams, the Archbishop of Canterbury, said recently:

“On our present showing, the sustainability of human life on this planet is rather unlikely.” Why did he say this? I think myself that he said this because whilst we can see that there are many millions of people round the world who are passionate about Making Poverty History, there do not seem to be many who are demanding action against climate change, even though as a friend of mine said about climate change:

“if we don’t solve that problem we can forget about the rest.” OK, people see that the weather is a bit different to what it was 30 or 40 years ago, but they put up with the changes, and many perhaps think that if it does get worse and unbearable there will be things that can be done to correct it. We have become arrogant and think we can control Nature. But most people have not bothered to find out what is really happening.

And worst of all they don’t realise that the change in the climate is not linear or gradual. The scientists do not yet really know what changes the concentrations of CO₂ will bring about in the climate

accurately. They know that in the past there have been times when there’s been rapid change. There are tipping points in fact when things could so much worse in such a comparatively short space of time that there would be a runaway effect beyond any possibility of control.

The first big obstacle, getting the world to work together on equal terms to combat and defeat climate change, will not be overcome unless the present apathy of the citizens of the world can be overcome and they get their politicians to work together and do whatever is necessary to reverse climate change.

11. **Why are most people so unconcerned ?**

“At its core global climate change is not about economic theory or political platforms, nor about partisan advantage or interest group pressures. It is about the future of God’s creation and the one human family.” US Conference of Roman Catholic Bishops Statement 2001.

“Perhaps the commonest circumstance under which societies fail to perceive a problem is when it takes the form of a slow trend concealed by wide up-and-down fluctuations. The prime example in modern times is global warming.” Collapse. *How Societies Choose to Fail or Survive*. Jared Diamond. 2005. Page 425.

Viktor Frankl, the Jewish psychiatrist and survivor of German concentration camps, said that in times of crisis people do one of three things,

they deny it, they despair or they commit themselves to ask critical questions.

There are two categories here; those who know what is happening to the climate and those who don’t.

Those who know what is happening and ignore it are in denial. They would rather forget about the whole thing because it is too frightful to contemplate and it looks as if there’s not much one can do about it; or at any rate those who can do something about it are not doing much.

The other category comprise I’m afraid most of the population. They might know something about it, don’t think it’s particularly serious, can’t be bothered to find out more, and think, in any case, that it is the job of the government to study it and do whatever is necessary to deal with it, if it is going to menace the population at large.

12. **Is the Government at fault ?**

“ Many of us who welcome and support the Prime Minister’s leadership in placing climate change at the top of the G8 agenda want him to strengthen his own position, which we feel is undermined by the Government’s own record. The Prime Minister rightly says that time is running out. Leadership is exercised by both rhetoric and example. The former without the latter robs you of authority.” Rt Rev. James Jones, Bishop of Liverpool. House of Lords 23 June, 2005.

“If you look at what the governments are doing we see

Tony Blair making endless extravagant promises about the carbon cuts he intends to introduce while knowing full well that he has absolutely no intention of introducing those cuts." Environmental Law Foundation. The Professor David Hall Lecture. 4th May, 2005, by George Monbiot. I believe the government should make it clear that we are at the start of what someone has described as "a long emergency", that climate change if not controlled soon, will finish us and that we should bear this in mind and prepare ourselves to adapt to the changes that are going to occur in any case.

In other words we really should be on a quasi war footing. There should be a ministry established just to deal with climate change and with authority over all other ministries that could effect climate change, eg transport, housing etc etc.

In the same way as in a war we pass emergency legislation to ensure that everything possible is being done to win the war, overcoming obstacles that are acceptable in peacetime, so we should legislate to ensure that everything possible is being done to reduce emissions in every possible sphere both public and private.

But I think that to be able to do this and to get the public to accept what is happening requires more than a speech by the Prime Minister in the Commons. The Prime Minister first has to ensure that all MPs have been properly briefed, possibly by getting them together in conference for a couple of days, and then has to

go on television with the Leader of the Opposition and the Leader of the Liberal Democrats and address the Nation. Anything less would not be enough. The public must grasp the sense of the long emergency gripping the world but be left with the feeling that we can do something about it.

In the United States President Bush may not believe climate change is occurring but cities, counties, states, colleges and businesses are doing something about it on their own..

And Governor Schwarzenegger of California on June 1st, 2005 adopted a plan in a tremendous effort to control greenhouse gases. His plan would reduce the state's emissions of greenhouse gases to year 2000 levels by 2010; to 1990 levels by 2020 and 80% below 1990 levels by 2050.

To do this he has created a Climate Action Team consisting of the ministers in charge of most departments, such as housing, business, transport, the environment and agriculture. The team will be responsible for implementing the emission reduction programme and will issue a report in January and bi-annually after that.

The Governor also established "a scenario planning effort" which will assess the impacts of climate change on California's water resources, agriculture, coastline, public health and forests.

California sees big business opportunities in what they think will be a worldwide demand for

new technologies to reduce greenhouse emissions.

The *New York Times* reported on the 24 August 2005 that nine Northeastern states have come to a preliminary agreement to freeze power plant emissions at their current levels and then reduce them by 10% by 2020 because the Bush administration has decided not to regulate greenhouse gases that contribute to global warming.

There's a lot more, therefore, that our government must do to put into effect an adequate plan.

13. ***Have I got you on board ?***

"To seek to have economy without ecology is to try to manage an environment with no knowledge or concern about how it works in itself- to try and formulate human laws in abstraction from or ignorance of the laws of nature. It is time to look seriously at the full implications of this. We need to start by recognising that social collapse is a real possibility. When we speak about environmental crisis, we are not to think only of spiralling poverty and mortality, but about brutal and uncontainable conflict. An economics that ignores environmental degradation invites social degradation- in plain terms, violence". Dr Rowan Williams, Archbishop of Canterbury. *The Independent* 17 April, 2005.

"The basic point is the same: remove the elementary staples of organised, civilised life- food, shelter, drinkable water, minimal personal security –

and we go back within hours to a Hobbesian state of nature, a war of all against all." *The Guardian*, 8th September, 2005: "It always lies below" by Timothy Garton Ash writing about the events round Hurricane Katrina.

I mean by this, are you persuaded that climate change must be controlled and reversed, that the time available for putting into action an adequate plan to bring this about is only about 10 years and that if we fail to do this humanity is unlikely to survive into the next century ?

I hope so, because, otherwise, you are living in an unreal world. One in which you are assuming that things will more or less stay the same as they are now, that your security is in the money in your bank account, or your business, or your life insurance, or your investments, or your possessions etc. and that your children's and grandchildren's future is assured.

I am not saying that the impact of climate change is going to undermine those assumptions tomorrow, no. But what we must take on board is that in the long term, say 20, 30, 40 years from now that is exactly what will happen. We are going to have a rough ride as it is, because of the fact that things will get much worse before they start getting better, but if the right plan is in place in time then we will know that the long term future for our children and grandchildren is assured, that there is light at the end of the very long tunnel.

It will be the task of government working with the people to get us through the

rough times. That is why we should be told the whole truth now and slowly prepare ourselves and our children for what is surely to come. Otherwise as things begin to get worse and people lose their employment, and life becomes more difficult in many spheres etc., there will be social unrest, riots, despair and society will lose its cohesion.

14. If you are on board, what will you do ?

"It is relatively easy to sketch the gravity of the situation; not too difficult either to say that governments should be doing more. But governments depend on electorates; electors are persons like us who need motivating. Unless there is popular motivation , governments are much less likely to act effectively; there are always quite a few excuses around for not taking action, and, without a genuine popular mandate for change, we cannot be surprised or outraged if courage fails and progress is minimal. Our own responsibility is to help change that popular motivation and so to give courage to political leaders. And this means challenging and changing some of the governing assumptions about ourselves as human beings." Dr Rowan Williams, Archbishop of Canterbury, *The Independent* 17 April, 2005.

"As the effects of global warming become more and more apparent, will we react by finally fashioning a global response? Or will we retreat into ever narrower and more destructive forms of self-interest? It may seem impossible to imagine that a

technologically advanced society could choose, in essence, to itself, but that is what we are now in the process of doing." *New Yorker*, "Annals of Science - The Climate of Man-III . What can be done ?", Elizabeth Kolbert. May 9, 2005. Every person should examine what he/she can do in both the public and the private spheres.

Whilst I think it enormously important that we should each take a look at our lifestyle and see how we can change it so that we reduce, as drastically as possible, our own contribution to carbon emissions and therefore to global warming, I think it is more important to get our politicians to do the right things and be determined to ensure that they put in motion nationally what is required to reduce the UK's total emissions.

And, because it is a global problem we must likewise make certain they do what is required on the international scene. And the time for reaching a global solution agreed to by all is constantly shortening as evidence of bigger temperature rises than predicted grows.

So lets deal with the public side first.

I was on that famous demo in London on the 15th February, 2003 of 2 million people asking Tony Blair not to involve us with the USA in the invasion of Iraq. We were completely ignored even though this was by all accounts the biggest demo ever organised in Great Britain. This is a measure of the task we have before us. How many of it is going to need

to march in London and all round the country before they cannot afford to ignore us? 3, 4, 5 million? 10 million? Whatever it takes is the answer as failure to achieve our ends is inconceivable.

And its not going to be enough to have only those who normally go on demos, the students, the trades unions, the peace groups, church groups etc. That wont be enough. We will need to have with us the medical and legal professions, all other professional organisations, all workers of every sort, teachers, children, priests, bishops, builders, plumbers, carpenters etc.

Yes, everyone. Which means that you are going to have to get on board your colleagues, your friends, your relations, the members of your club, everyone you can possibly think of! And I,am going to have to do the same. Only if we all work together will we succeed.

15. ***What about our lifestyle, what should we change there ?***

“Whatever your economic position, unless you are a green economist, and unless you realise that the fundamental, physical and biological fact of the world is finitude, all those economics tell us that we just keep growing and keep growing and everyone will be happier and the better for it . This is one of the absolutely fundamental problems driving this issue of climate change.” Environmental Law Foundation. The Professor David Hall Lecture. By George Monbiot. 5th May, 2005.

In the bibliography you will find a list of books that deal with this subject. There are lots of things one can do. Every person will have to assess himself and his household and see what he can achieve.

We are faced with many temptations, like, for example cheap flights. Some people take advantage of these flights and have ten weekend breaks in Europe over the course of a year. And then of course, their normal two longer holidays a year. But the damage done by aircraft to the atmosphere is immense and we should take this on board and limit ourselves to something reasonable.

In his book “How we can save the planet” Mayer Hillman tells us to calculate our total carbon emissions and goes on to propose that if we are to stabilise carbon concentrations in the atmosphere to 450 ppmv by 2030 we will individually have to reduce our own emissions by 80 per cent by 2050. He goes on to explain how we could do this.

One MP has proposed that the government should introduce a smart card with our ration on it which we would have to use when buying petrol, oil etc. This would force people to keep to the ration except that those individuals who did not use all their rations could sell their surplus to those who wanted more.

I feel that in the end compulsory carbon rationing is going to have to be introduced as voluntary reductions of our personal greenhouse gases emissions will not be nearly enough.

In the meantime we must begin to do something individually to reduce our emissions.

Here is one proposal of what we could do:

“Things you can do to reduce waste and save energy:

- Choose alternatives to using cars whenever possible; walk, cycle, car share, or use public transport.
- Take a shower instead of a bath.
- Use a 40C washing cycle when you use a washing machine instead of 60C.
- Choose the right size pan for the food and cooker, and keep lids on when you are cooking.
- Don't boil a whole kettle of water for just one cup of tea.
- Defrost your fridge regularly: it will run more efficiently.

- Close your curtains at dusk to stop heat escaping through the windows.
- Invest in improved insulation including loft insulation, draught proofing and double glazing.
- Check that hot water tanks and pipes in your house are lagged properly.
- Turn off all electrical appliances when they are not in use instead of leaving them on standby, particularly televisions and computers.
- Buy your electricity from a renewable resource.
- Buy energy efficient appliances – including light bulbs. Look for ‘A’ rated products, which are most efficient, and stay away from ‘G’ rated products, which are least efficient.
- Recycle your light bulbs and lamps. To find out how to recycle

all sorts of lamps, [visit www.lampcare.com](http://www.lampcare.com).

- Recycle your mobile phone. For more information, go to www.greenersolutions.co.uk or call 020-8274-4040.
- If you have a garden, use vegetable waste from the kitchen and the garden for compost instead of just throwing the waste away.
- Not sure what you can recycle or where you can recycle it? Go to www.recycle-more.co.uk and type in your postcode for the nearest recycling bank.
- To minimise air travel, contemplate alternative modes of transportation, holiday locally, and reduce business trips by using video conferencing.”

From NEW WORLD (magazine of UNA-UK) July-September 2005.

16. We must not allow ourselves to lose our zest for life and our hopes for the future

“Faith in the dawn arises from the faith that God is good and just. When one believes this, one knows that the contradictions of life are neither final nor ultimate. One can walk through the dark night with the radiant conviction that all things work together for good for those that love God. Even the most starless midnight may herald the dawn of some great fulfilment.”

Martin Luther King Jr.

It would be easy to sink into despair and give up at the gravity of the situation but this would be to give up hope and we must never give up hope.

We must, each one of us, find our own way to fight the menace of climate change, both in our own lives and as a citizen of our country and as a member of the human race. There are many levels at which we can become involved and we must each find the ones most suited to our situation.

And we must continue to enjoy life and carry on as normally as possible.

A friend, Ruth Jarman, in an article in Issue 58 (Summer/Autumn 2005) of Green Christian, the magazine of Christian Ecology Link, to which we both belong, has written:

“...So we are fighting a spiritual battle as well as a material one. The battle is even bigger than we thought. And we will never win our struggle without also backing-up our activism at a spiritual level...”

I would like to reproduce most of her article here, especially for those of us who are Christians:

“From despair to prayer” by Ruth Jarman.

“As I write this, my 7 month old son Thomas is sitting on my lap, happiness and innocence embodied in a baby-shaped bundle of joy. His trusting blue eyes search mine and he smiles with his toes as much as with his face. The world that he knows is warm and comforting and full of songs and colours and kisses. He is close to the kingdom of heaven. I admire his living in the moment, his freedom from past regrets and future fears. One day I will tell him that his future world will not be as beautiful as it was meant to be, not as safe, maybe terrifying. But I will put that day off as long as I can, allowing him to bask in the present while I weep for his future.

For Thomas’s future is dire. If you look at the spiralling carbon dioxide emissions and compare the paltry efforts to contain them against what the scientists are saying needs to be done, the situation is hopeless. Carbon emissions are increasing year on year- a few wind farms will not turn things around, a few nuclear power plants will not be enough, technology changes will take too long, Kyoto achieves next to nothing. And the scientists say that to save the earth from immense hardship and possible calamity we need to slow the escalation in emissions to the point where they start dropping within the next 10-15 years. They have got to be kidding. It is just not going to happen. We need God’s help here. We need a miracle.

The lag time between emitting carbon dioxide into the atmosphere and the temperature rise that it causes is about 30 years. It is our children who will reap what our generation has sown, and Thomas and his mates will be powerless to do anything about it. I want to scream at the injustice of it. The Bible is teeming with reasons for caring for Creation; our duty under God is to protect the Earth, but since Thomas’s birth my motivation has been pure mother bear and I am desperate in my inability to protect my cubs.

I went to my Christian Ecology Link (CEL) friends with my despair, wanting to be told it was all going to be OK, I didn’t get the platitudes I was hoping for. I got something better: honesty, understanding and a path through the mire. One friend, with tears in her eyes said ‘yes, this is why I do what I do.’ I was recommended some books and articles to read which did not dispel my despair, but gave me hope in its midst. I realised that CEL is performing a prophetic role in our time and so we can look to the Old Testament prophets for help. Brueggemann’s Bible study on Jeremiah ‘Is there no balm in Gilead’ shows how prophets were acutely aware of the current situation ‘but they never confused present possibility with divine impossibility’. It would be quite easy to push the reality of climate change to the back of my mind, to focus on school runs and washing and bed time stories, to just not think about it. And to some extent we all do that. But to fulfil our prophetic role we need to look at the world and ache. We need to

face the truth about the world and give voice to our despair. For it is in utter hopelessness that our hope must come from the Lord, as there is nowhere else it can come from. It is in pouring out our despair to God, in expressing our anguish, when it is also God’s anguish, which keeps us close to God and allows the possibility of hope. “

And at the end of her article Ruth says:

“ We (CEL) are a community of Christians who care for the future of the Earth. We can complain to each other, we can despair together, grieve together for our children’s future, and we can also pray together, haggle with God for a different outcome to the one we are hurtling towards and pray an alternative future into being.”

"A prayer for hope in the face of climate change." Ruth Jarman - After Psalm 43.

“ Why are you so downcast, O my soul?
Why so disturbed within me?”
Lord, the enemy is near,
stalking our children.
Vindicate us, O God.
and plead our cause against an
ungodly world system;
rescue us from deceitful and
wicked powers.
You are God our stronghold.
Why have you rejected us?
Why must we go about
mourning?
oppressed by the enemy that
lies in wait for our sons and
daughters?
Send forth your light and your
truth,
let them guide us.
Let your light and your truth

guide how we deal with our
hopelessness,
Let your light and your truth
guide us to live
in a way that fights instead of
feeding the enemy.
Let your light and your truth
reveal the foolishness of greed
and rampant consumerism and
lead the nations to repentance
and the path of life.

“Why are you so downcast, O
my soul?
Why so disturbed within me?
Put your hope in God,
for I will yet praise him,
my Saviour and my God.”

Reggie Norton,
September 2005
(email: reg.nort@mplc.co.uk)