

Climate Change, The Response of Catholics

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The so-called 'greenhouse effect' refers to the fact that gases in the atmosphere like carbon dioxide and methane trap the sun's heat energy and keeps the earth in a temperature range that allows life to flourish. Dr. Peter Tans, the director of the US National Oceanic and Atmospheric Administration has recently said that we have seen an increase in carbon dioxide levels every year since 1958.¹ By 2050 atmospheric CO₂ will reach 500 parts per million. The last time this happened was almost 50 million years ago in a period known as the Eocene. There was no ice on earth and sea levels were 300 feet higher than they are today.

There are a number of other gases responsible for climate change. These include methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride. Methane is produced by fossil fuel extraction, cattle farming, rice growing and landfills.

How should the Catholic Church Respond to Global Warming?

From all that has been said here during this past three days it is clear that global warming will have, in the main, a negative impact on

1 . James Reynolds, "Greenhouse gases reach a new high say researchers", The Scotsman, 1 April, 2005, page 25.

human kind and most other forms of life in the biosphere. So what steps should the Catholic Church take globally and in Australia to deal with this reality that is poised to bring pain, suffering and death to millions of humans and other creatures. The Churches should be in the forefront in tackling global warming at the moral level.

The World Council of Churches has an extensive body of teaching on global warming. This includes a document published in May 1994 called Sign of Peril, Test of Faith, Accelerated Climate Change and more recently in 2002 a pamphlet Solidarity with Victims of Climate Change.² A lot of the credit for these and other publications goes to people like Dr. David Hallman who spoke to us last night and Dr. Lukas Vischer.

Unfortunately, the Catholic Church, either globally or locally, does not have a similar corpus of teaching on global warming even though, as many people argued here over the weekend, it is the most serious ecological issue facing the planet at the moment. One of the first places where global warming appears in papal teaching is in the 1990 document on ecology; Peace with God the Creator; Peace with all Creation. The document lumps together global warming and the destruction of the ozone region by CFCs together. In number 6 of that document Pope John Paul II writes *The gradual depletion of the ozone layer and the related 'greenhouse effect' has now reached*

² Sign of Peril, Test of Faith, Accelerated Climate Change, 1994, World Council of Churches, 150, route de Ferney, P.O. Box 2100, 1211 Geneva 2, Switzerland and Solidarity with the Victims of Climate Change. Reflections on the World Council of Churches' Response to Climate Change, 2002.

crisis proportions. While CFCs are a global warming gas – the depletion of the ozone layer and global warming are two different things. This, of course, underscores the need for moral teaching on any ecological issues to be grounded in good science.

There is a brief mention of global warming in the newly published Compendium of the Social Doctrine of the Church, from the Vatican Council for Justice and Peace.³ A small number of Episcopal Conferences have reflected on global warming and climate change and a few Catholic theologians have also written on the issue. **This paper will attempt to develop a theological response to global warming from a combination of some traditional and contemporary moral principles and virtue ethics.**

No 470 of the Compendium states; *Every economic activity making use of natural resources must also be concerned with safeguarding the environment and should foresee the costs involved, which are “an essential part of the actual cost of economic activity”. In this context, one considers relations between human activity and climate change which, given their extreme complexity, must be opportunely and constantly monitored at the scientific, political and juridical, national and international levels. The climate is a good that must be protected and reminds consumers and those*

3 Compendium of the Social Doctrine of the Church, 2004, Veritas Publications, Dublin.

*engaged in industrial activity to develop a greater sense of responsibility for their behaviour*⁴

These few sentences can form the basis of a Catholic response to global warming and climate change. First of all Church leaders need to seek accurate science and independent science on any ecological issue. They need to be sure that it does not come from the perspective of those who are poised to make money from one outcome or another. In the first chapter of my book Patenting Life? Stop! Is Corporate Greed Forcing Us to Eat Genetically Engineered Food? I chart the growth of corporate power since the end of World War Two. These are now among the powerful and influential institutions on earth and, unfortunately, government decisions often favour corporate interests rather than the common good.

In the run up to the Kyoto Conference a group of industries known as the Carbon Club ran advertisements to block any US involvement in Kyoto. They used all kinds of tactics – corporate PR, psychology, mass media manipulation techniques and political muscle to get politicians and opinion makers to do their will. And they succeeded admirably, especially when George W. Bush was elected in 2000. But, let's not dump everything on President Bush. Even under President Clinton the US Senate was not willing to ratify the Kyoto agreement. In the face of this manipulation of scientific data should the Catholic Church stand by and twiddle its thumbs? The issue is

4 . Compendium of the Social Doctrine of the Church, 2004, Libreria Editrice Vaticana, 00120 Citta del Vaticano, Roma. No. 470

so important I believe we should not. Rather we should show the necessary courage to challenge vested interests in the name of the poor, future generations and the wounded earth community. Think of the Prophet Amos who thundered against the lifestyle of the women of Samaria whose extravagant demands *oppressed the needy and crushed the poor* (Amos 4:1).

Those who have read my recent books are well aware that I have been in, let's say, dialogue, with the Council for Justice and Peace of the Holy See on the hugely important question of promoting genetically engineered food as a way of combating world hunger.

The Council ran a two day seminar in November 2003 to address this issue and the Pontifical Academy of the Sciences in conjunction with the US Embassy to the Holy See ran a day on the issue in September 2004. The vast majority of those present at the first seminar came from the biotech industry and all of those present at second seminar were supporters of the industry. Neither seminar discussed the morality of patenting living organisms which should have been high on the list of priorities for a Church which claims to be a prolife institution. The reality is that there are trillions of dollars to be made by biotech corporation from selling GE crops and that fact informs every discussion including, unfortunately their research programmes.

My position on GE plants is similar to the well-known Canadian scientist and broadcaster, David Suzuki. In April 2005 he told

journalists that, *anyone that says ‘Oh, we know that this is perfectly safe,’ I say is either unbelievably stupid or deliberately lying. The reality is we don’t know. The experiments simply haven’t been done and we are now becoming the guinea pigs*⁵.

Research problems are not confined to the biotech companies. Many people will have read John Le Carre’s novel The Constant Gardiner. It is a novel which portrays a powerful transnational pharmaceutical company testing a dangerous tuberculosis drug on unsuspecting poor people in Africa. Failures were literally buried. When the wife of a British diplomat stumbled on the truth and began to investigate what happened she was murdered. The British government colluded with the cover up of the murder. The husband set out to find out what had happened and when he uncovered the murder he too was murdered. It is obvious from the novel that the author is very angry at what he has uncovered.

In a very unusual postscript to the novel Le Carre department from the usual convention which is to caution that all persons and institutions that appear in the novel are fictional. He adds; *But I can tell you this. As I my journey through the pharmaceutical jungle progressed I came to realize that by comparison with reality, my story was as tame as a holiday brochure.*

⁵ Angela Hall, “Suzuki warns against hastily accepting GMOs”, The Leader-Post (Canada) April 26, 2005. www.gnwatch.org> 11/09/2005.

In November 2005 the book was released as a film starring Ralph Fiennes and Rachel Weisz and directed by the Brazilian director Fernando Meirzelles.

Dr. Marcia Angell, senior lecturer of social medicine at Harvard University tells a similar story in her book The Truth about the Drug Companies: How they Deceive Us and What to do about it. In this book she is critical of the unethical medical trials which pharmaceutical companies from rich countries carry out on poor people in Third World countries. The drugs that are being tested are not those that might help address illnesses in poor countries, like malaria. They are geared to First World illnesses like heart disease. Her key point is simply this: Pharmaceutical research is driven too much by profit.⁶

At this point in time in almost every country I know, from the US, through Ireland, the United Kingdom and Australia, governments are actively cutting back on public science. Even Universities are being colonized by corporations which will again skew science away from public interest. This will have potentially disastrous consequences for the well being of humans and the earth so the Church should champion public science. Church leaders should be willing to criticize government decisions like the ones taken in recent years here in Australia to cut back on the number of scientists at the Commonwealth Scientific and Industrial Research

⁶ Marcia Angell, “Where our rules don’t apply”, The Australian Financial Review, November 18th 2005, page 6 of the Review.

Oganisation (CSIRO). In 2003 the Labor party opposition spokesman on science and research, Kim Carr, claimed that 850 jobs and \$100 million dollars had been cut from the CSIRO's budget. **Private research is always oriented to profit. Unless we have publicly supported research we will not be able to meet the numerous demands of developing a truly sustainable future.**

Climate Change and Common Good

Returning to the paragraph in The Compendium it says that, *climate is a good that must be protected*. Concern for the common good has traditionally been at the heart of Catholic moral and social teaching. In an extensive reflection on the common good the Compendium goes on to states that: *the common good that people seek and attain in the formation of social communities is the guarantee of their personal, familial and associative good* (numbers 61, 164, 165, 168) What this document and almost all Catholic Social Teaching tends to forget, is that human social relations are always embedded in vibrant and sustainable ecosystems. Anything that throws ecosystems or the whole biosphere out equilibrium, such as global warming is a disruption of the common good is a most fundamental way – especially if it creates irreversible changes.

That is exactly what climate change is doing. To sum up the challenge briefly: In January 2004, Sir David King, the chief scientist to the British Government, stated that climate change was to most serious issue facing the human community. Therefore in his view US climate policy is a bigger threat to (the) world than terrorism.⁷

Through out the weekend we have learned about the global systems that will be adversely and irreversibly affected by global warming.

These include:

Major Problems with Water

Global Warming will affect the availability of water both for human consumption and for agriculture. Areas where paddy rice can be grown may be come less available, so the elaborate and expensive irrigations systems which have been built during the second part of the 20th may become irrelevant

Desertification

Scientists believe that desertification is being exacerbated by global warming. Over 770 square miles of China becomes desert each year. One cannot argue that global warming is the only cause of this

7. Steve Connor, "US climate policy is a bigger threat to world than terrorism", The Independent, January 9, 2004, page 1.

phenomenon as over grazing and other destructive agricultural practices also take their toll. **Nevertheless, global warming does play a significant role. Long-term records indicated that there is a declining rainfall in the area and temperatures have risen at twice the global average in recent decades.**⁸

A report by the environmental group World Wide Fund for Nature Australia and two meteorologists published in January 15, 2003 argued that global warming which led to record day time temperatures in 2002 caused unprecedented rate of water evaporation. This is contributing to desertification. The report was endorsed by researchers at the government funded Commonwealth Scientific and Industrial Research Organisation (CSIRO). Kevin Hennessy, a senior researcher at CSIRO's Atmospheric Research Department predicted that the Murray-Darling Basin would get between a half a degree and two degrees Celsius warmer by 2030 and 10 percent drier.⁹

More frequent and violent storms

In 2005 more hurricanes appeared in the Atlantic – Caribbean since records began beating the previous record which was set in 1969. One of the most memorable ones were 2005 Katrina which destroy New Orleans and much of the Gulf Coast of Mississippi and Alabama. Almost one and a half million people were displaced. The storm breached the levees in New Orleans and sent water pouring into the city which is 6 feet below sea level. The projected cost of

8 . Ibid.

clean-up and rehabilitation is estimated at \$100 billion this does not include the human misery which resulted from the storm.

There is empirical evidence that hurricanes are becoming more intense though not necessary more frequent. The science magazine Nature published a study by Kerry Emanuel, a hurricane scientist at M.I.T. that by one measure hurricanes have doubled in intensity over the past 30 years.¹⁰ While indisputable causal connections between the increase levels of carbon dioxide in the air and global warming cannot be made there is increase unanimity in the scientific community that global warming is actually happening.

Naomi Oreskes of the University of California, San Diego wrote an essay for the journal Nature in which she analyzed 928 articles published in scientific journals between 1993 and 2003. She found that none of the papers disagreed with the consensus position that human activity is causing a rise in global warming.¹¹

The insurance companies are also aware that climate change is happening. In 2000 one of the largest insurance companies in the world – Munich-Re – published a report claiming that *climate change could trigger world-wide losses totaling many hundreds of billions of US dollars per year. Most countries can expect their losses to range*

⁹ www.planetark.com/dailynewsstory

¹⁰ New York Times, September 11th 2005. www.nytimes.com/2005/09/11/opinion>

¹¹ . Robin Mckie, “ Condemned to death by degrees if we fail to act”, The Observer, July 7th 2005, A2.

from a few tenths of a percent of the GNP per year; and certain countries, especially Small Island States could face losses extending to 10%.¹²

Rising Sea Levels

As the oceans warm up and expand, sea levels will rise, anywhere from four inches to three feet by 2100, leading to severe flooding over lowland areas.

The main reason for the rise in ocean levels is not the melting of polar ice caps but the thermal expansion of the ocean water. Scientists calculate that sixty per cent of the rise in sea levels will be due to thermal expansion and only twenty per cent will be due to the melting of land ice.

One final reflection on global warming and the common good from a document published by the United States Conference of Catholic Bishops entitled Global Climate Change: A Plea for Dialogue, Prudence and the Common Good. The bishops believe that the virtue of prudence is paramount in addressing climate change. They write: *Prudence allows to discern what constitutes the common good in a given situation..... Prudence not only helps us identify the principles at stake in a given issue, but also moves us to adopt course of action to protect the common good. Prudence is not, as popularly thought, simply a cautious and safe approach to*

¹² Solidarity with the Victims of Climate Change, January 2002, World Council of Churches, page 9.

decisions. Rather, it is a thoughtful, deliberate, and reasoned basis for taking or avoiding actions to achieve a moral good.

Intergenerational Justice

Another source for shaping a theology and morality on global warming comes from a concern for intergenerational justice. Traditional ethical concerns normally dealt with the impact of our behaviour on individuals or communities in the here-and-now or the immediate future.

The basic principle which arises from this ethical concern is that future generations have the right to inherit a world as fertile and as beautiful as the one which we inhabit. We have to seriously counter an attitude which is prevalent among many people, especially politicians and bureaucrats. If something is not going to happen on my watch, then I'll leave it to my successor to deal with it even though I know what I am doing now will exacerbate the problem and maybe create a situation which is irreversibly. In response to that the Church needs to develop its teaching on sustainability. We need to be reminded that the earth is finite and that we must live in a way that is fair and just to future generations of humans and other creatures.

We also need to understand the nature of irreversible ecological damage and its implications for future generations. The potential damage from global warming to the earth and the

peoples of the earth is enormous. Unless this and the next generation stabilize the emissions of global warming gases then the consequences are inevitable and irreversible in geological time. It is an extraordinary and awesome moment in human and earth affairs that the behaviour of one or two generations can have such profound and irreversible impact, not just on human history, but on the planet as well. And no future generation, no matter how moral or motivated it might be, will be able to reverse the damage.

Number 462 of The Compendium echoes some of this when it states when it challenges the view that; *an infinite quantity of energy are resources are available, that it is possible to renew them quickly, and that the negative effects of the exploitation of the natural order can be easily absorbed. This reductionist views the natural world in mechanistic terms and sees development in terms of consumerism.*

Preferential Option for the Poor.

Another principle in our search of an ecological theology is the preferential option for the poor. This is a relatively recent moral principle which emerged, especially in Latin America, during the second part of the 20th century. **It is now enshrined in Catholic Social Teaching and challenges individuals and societies to examine ethical and economic choices from the point of view of how it will affect poor people, not just in their locality, but**

globally. Will these choices enhance the life of the poor or further impoverish them. Global warming will have a devastating impact on the poor as these few examples will illustrate.

One of the abiding tragedies and ironies in reflecting on global warming is that the poor, who have contributed least to it, will suffer most. The World Council of Churches' document on climate change, Sign of Peril, Test of Faith, has a chart on page 11. It tries to compute the CO₂ from various countries between 1800 and 1988. North America contributed 32.2%, Europe's contribution was 26.1%, Latin America was 3.8% and China was 5.5%. That has grown enormously since. (It is now estimated that by 2025 China will have overtaken the US as the top emitter of Greenhouse gases):

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- The forward to the recent publication Africa- Up in Smoke? States the problem of global warming very succinctly – *The World's wealthiest countries have emitted more than their fair share of greenhouse gases. Resultant floods, droughts and other climate changes impacts continue to fall disproportionately on the world's poorest people and countries, many of which are in Africa.*
- Melting of Glaciers

13 . Michael McCarthy, "The China Crisis". The Independent, October 19, 2005, page 1.

There are about 160,000 glaciers on earth. Only about 40 have been monitored closely during the past 30. Many of these have been melting during the past 20 years. Melting glaciers are also creating potential disasters. According to Paul Brown of The Guardian "*there are thought to be hundreds more such liquid time bombs in India, Pakistan Afghanistan, Tibet and China.*"¹⁴ The situation is rendered more dangerous by the fact that many of these lakes are in geologically active areas. A sizeable earthquake could trigger a disaster. Peru has lost about one third of its glaciers in the past 30 years. The consequences of this could be catastrophic for Peruvians as most of the population live in the desert climate close to the Pacific ocean. Their water supply come from glacier-fed rivers. If, in two decades, the glaciers on the Andes have melted the 7 million inhabitants of Lima will be starved for water.¹⁵

The impact of melting glaciers on agriculture could also be catastrophic. If the glaciers melt on the Himalayas this will affect the melt waters of The Ganges, Bramaputra, Mekong and Yangtse rivers. One third of humanity depend on these rivers for their food production.¹⁶

Increased levels of the oceans

14. Paul Brown, "Global warming melts glaciers and produces many unstable lakes" The Guardian, April 17, 2002

15 Michael McCarthy, "Waiting in the wings: the other leaders who must take a giant leap for the planet", The Independent, 5 July, 2005, page 5.

16 Elizabeth Kolbert, "The Climate of Man", op. cit., page 71

In assessing the impact of the rising levels of the oceans we made the point that thermal expansion of water will be the main cause of oceans levels rising. However a significant melting of the ice sheet, especially in Greenland will have a major impact on the level of the oceans. If it melts completely it will add 7 metres to the present level of the oceans.

Even if we move back from that figure to a mere rise of 10cm in oceans levels by 2030 it will have a negative impact on the lives of 10s of millions of people. **Firstly, more than half the population of the world live coastal areas which are often heavily populated and have some of the riches agricultural lands. In Bangladesh about one half of its agricultural land would be lost if the sea levels rose by a half a metre. Secondly, and equally important is the fact that most of the productive farm land is found in the delta. This would be lost by erosion and the intrusion of salt water into the fresh water aquifers making parts of the coastline uninhabitable.** So where will the millions of ecological refugees from Bangladesh go?

Bangladesh will not be the only country affected. Similar dynamics will operate on the Nile delta. Around twenty per cent of Egypt's arable land and more than 7 million of the population live in the delta. Low lying islands in the Indian Ocean like the Maldives and the Marshall Islands and Tuvalu, Kiribati, Palau, Tonga, Mauri and Cook Islands in the Pacific many of which are less than three metres above sea level will be adversely affected.

The Church community and all humankind need to respond to the plight of the poor. *Solidarity* was a concept much beloved of Pope John Paul II. In his Encyclical Sollicitudo Rei Socialis (Concern for Social Realities 1987) he describes solidarity *not as a feeling of vague compassion or shallow distress at the misfortunes of so many people, both near and far. On the contrary, it is a firm and persevering determination to commit oneself to the common: that is to say the good of all and of each individual, because we are all really responsible for all.* In the context of the deepening ecological crisis solidarity acknowledges that we are increasingly bound together as members of the Earth community. We are responsible for the well being of the poor and all creation. Our destinies are linked. We will either pass on a fruitful, beautiful and vibrant planet for the wellbeing of all creatures or all future generations will be forced to live amid the ruins, not merely of the technological world, but of the natural world itself.

Concern for the wider Earth Community.

Another element in our moral framework, namely a concern for the wider earth community, has only begun to emerge in very recent times. Unfortunately, it is not completely bedded down in the teaching of Vatican Congregations or Councils. Part of the reason for this is the almost absolute priority we have given to the human. This clearly expressed in The Compendium number 171 quoting Vatican II Gaudium et Spes Number 69. *God destined the earth and all it contains for all men and all*

peoples so that all created things would be shared fairly by all mankind under the guidance of justice tempered by charity. Excuse the sexist language – which as someone who studied linguist I find linguistically incompetent and totally inexcusable in Church documents. This may well be an acceptable justice perspective, but as an example of domination theology, it is no longer adequate to our times. Other creations have intrinsic value. They are God's creatures and he loves them and we human are linked to them through close genetic bonds. Given our present ecological challenges either the whole biosphere will prosper or we all go down together.

In a recent reflection on part one Psalm 135 Pope Benedict XV1 said that, *the first visible sign of this divine love is found in creation*¹⁷

As results of insights from ecological theology Christian ethical behaviour must no longer be confined to our relationship with God and other human beings but it must also inform our relationship with creation. We must reformulate the Vatican 11 sentiment, which has been the teaching of the Church since patristic times – by saying that *the goods of the earth are meant for all the people of the world and all the creatures of the world.*

Global Warming and Extinction

A perfect example of this is the mass extinction of species which is taking place in our time. In January 2004 Dr. Chris Thomas of Leeds University in Britain published an article in the magazine Nature on the impact of climate change on the natural world. He and his team of scientists from around the world estimated that, over the next 50 years climate change is expected to drive one quarter of land animals and plants over the precipice of extinction. The paper was based on two years of research. According to Dr. Thomas, *when the scientists set about the research they hoped to come up with definite results, but what we found we wished we had not. It is far worse than we thought, and what we have discovered may be an underestimation.*¹⁸

As the climate changes some species will not be able to adapt quickly enough to the change and will simply become extinct. In Australia up to 54% of the Continents butterfly species could become extinct before 2050. Orange Whitespot Skipper and Western Jewel face losing 90% to 98% of their distribution range. Boyd's Forest Dragon (*Hypsilurus boydi*) was especially vulnerable. A 25% extinction rate for European birds has been predicted.¹⁹

Coral Reefs and Global Warming

17 Fides services, November 7, 2005

18 Paul Brown, "An unnatural disaster", The Guardian, 8, January 2004, page 1.

19 John von Radowitz, Irish Examiner, September 1, 2004, page 3.

Global Warming is also causing massive changes on coral reefs. After rainforests these are some of the most biologically rich life-systems on the planet. **Dr. Tim Flannery the director of the South Australian Museum states in his book The Weather Makers that Australia's great coral reef is particularly at risk. Visitors traveling to Queensland by 2050 may see the Great Stumpy Reef.**²⁰ The Pastoral Letter on the Great Barrier Reef written by the Catholic Bishops of Queensland in June 2004 when enumerating the problems facing that ecosystem speak of the *problems connected with climate change; particularly coral bleaching and rising sea levels.*²¹ If global warming continues at its present rate almost half the coral reefs could be lost within the next 40 years.

Scientists in Antarctica have discovered that global warming and the rise in sea temperature is having a very negative impact on wildlife in that region of the world. Within a few decades the population levels of many creatures including whales, seals and krill could be affected. Lloyd Peck a marine biologist with the British Antarctic Survey said that: *The sea temperature is going up in a way that wasn't predicted and this makes me more worried for the marine animals.*²² **One of the species most at risk is krill. A study published in 2004 found that krill numbers had decreased by 80% since 1970. Scientists link this near collapse**

20 . "Ill winds that whisper the collapse of civilisation", The Sydney Morning Herald, www.smh.com.au/articles/2005/09/231126982230825.html>

21 Let the rMany Coastlands be Glad, (Ps 97), Pastoral Letter on the Great Barrier Reef, by The Catholic Bishops of Queensland, page 17.

22. Davod Adams, "Sea ice melts and glaciers shrink at accelerating rate: Decline in

of krill to shrinking sea ice Krill of course are crustaceans that grow up to 6 cm. They are the staple food of almost everything in the sea from fish to whales. A dramatic decline in krill could have catastrophic consequences for marine life.

In response to the destruction of whole ecosystems and the extinction of creatures the Church should preach embody a Gospel of Life. **Bio-responsibility calls us to extend the covenant of justice that we find in to bible to include all life-forms as God's beloved creatures and as expressions of God's presence, wisdom, power and glory. This is expressed beautifully on page 8 of the publication The Gift of Water – A Statement Endorsed by Bishops of the Murray-Darling Region.**

Prophetic Role

A biblical based moral theology emphasizes the prophetic role of the Church. There are two aspects to this prophetic stance of the Church. First, having weighted up the issues involved the Church must challenge individuals and institutions who are primarily responsible for global warming to change their affluent lifestyles and their profligate use of energy. This where I find the US Bishops' statement which I referred to earlier lacking. They state that while recognizing the importance of international solidarity in addressing problems like global warming they are unwilling to recommend that the US government sign up to the Kyoto Protocol. *Without endorsing the specifics of these agreements and processes,*

stocks of krill hits entire food chain", The Guardian, October 19, 2005, page 9.

we Catholic bishops acknowledge the development of these international negotiations and hope they and other future efforts can lead to just and effective progress. This is unhelpful. If they were dealing with human abortion they would have any hesitation about recommending courses of action. Yet, global warming will bring pain, misery and death to the lives of millions of people in the future.

Kyoto

Furthermore, Kyoto is the only game in town at the moment. It is not nearly enough but it is a beginning. It is the end of a long torturous process rooted in the Earth Summit in Rio in 1992 which reached its culmination in The UN Conference on Climate Change in Kyoto, Japan in December 1997. While the scientists who were members of the Intergovernmental Panel on Climate Change insisted that a 60 to 80 per cent cut in greenhouse gases was required to stabilize the global climate, all the participants at Kyoto could come up with was an agreement to reduce greenhouse gas emissions by between 5.2 and 7 per cent on their 1990 figures by the year 2012. The European Union agreed to cooperate but the US set its face against any legally binding reductions almost from the beginning. **Even though they represent less than 5 per cent of the world's population but are responsible for 25 per cent of greenhouse gas pollution.**

The Churches should support legal frameworks like the Kyoto protocol and should, even how, be promoting its successor. Number

468 of The Compendium states that, *responsibility for the environment should also find adequate expression on a juridical level.*

The second aspect of prophecy moves beyond critiquing and condemning unjust social, economic and political structures. It attempts to liberate the imagination of individuals and Christian communities and empower them to seek new ways of living that will be just, non-polluting and sustainable. If Christians simplify their energy demands and support renewable energy initiatives they will be following the injunction of Yahweh in the book of Micah *to act justly, love tenderly and to walk humbly with you God* (Micah 6:8).

Here we can draw on two Christian virtues – *Generosity* and *Frugality*. Generosity call us to share Earth's richer with all humanity and all creation and to promote the common good of all creation.

Frugality invites us to restrain our economic production and consumption patterns, especially in rich countries, for the sake of the well-fare of the poor and the Earth. Jesus has warned us that we will not achieve happiness by accumulating material things. Frugality promotes moderation, sufficiency and temperance.

In this context it is important to stress as The Compendium does that, *economic activity and material progress must be placed at the service of man and society* (Number 326, par. 2).

In future long-term ecological concerns must take precedence over short-term economic gains.

Finally, in the context of global warming one overall all moral principle might be formulated as follows. Are these policies and programmes liable to make people and the earth more vulnerable to the effects of global warming. The test will be: Is this climate friendly or climate proof?²³

It can be done

It is worth emphasizing that most experts believe that it is possible to make significant reductions in greenhouse gas emissions through a combination of policy measures in the areas of energy supply and use, conservation and technological innovations. In fact the world that would emerge from these kind of changes would also be much more satisfying for human living. We must not present the options facing us in the area of climate change as a choice of donning more and more prickly hair shirts. But the jury is out; will we have the political and moral will, facilitated by religious belief, to make the far-ranging changes which are demanded to halt the present slide.

23 . Africa – Up in smoke? The second report from the World Group on Climate Change and Development, page 4. Published June 2005 by NEF (economics as if people mattered).

Faced with global warming Christians are called to opt for a new way of life based on simplicity, and sufficiency rather than endless greed-driven accumulation of material possessions. Many of the answers in the Australian context have been presented here during the past few days.

The World Council of Churches' Document: Sign of Peril, Test of Faith.

A much more detailed examination of global warming has taken place with the World Council of Churches (WCC). This culminated in the publication of a document entitled Accelerated Climate Change; Sign of Peril, Test of Faith. As far back as 1988 the WCC sponsored a consultation on global warming attended by Church people, environmental groups, scientists and politicians. During the following years the WCC continued to share with its members Churches the significance of global warming both as a threat to the well-being of God's creation and as a justice issue involving North/South relations.

The WCC assessed the present situation and made a number of recommendations. **Firstly, they felt that it was important to deepen the theological and ethical reflections on climate change. Secondly, they saw the importance of letting people know that responding to climate change would involve profound changes in all spheres of life. Thirdly, the ecological, economic and political aspects of climate change ought to be assessed from a justice**

perspective, especially in the light of the growing gap between the North and the South. And, finally, they understood it was crucial to provide the Churches with a resource base on these reflections to assist them in their work of education and advocacy. Sign of Peril, Test of Faith addresses this agenda.

These reflections flow from the basic tenets of the Christian faith. These include God's love and concern for creation and the poor of the world. The propensity of humans to disobey God's will and inflict pain on people and creation and the belief that God's grace can move people to repentance. Faced with the problems of global warming, repentance ought to involve a willingness to opt for a new way of life based on simplicity and sufficiency rather than endless consumption and greed-driven accumulation of material possessions.

Governments and industry must pursue policies that promote energy efficiency and accelerate the shift away from a fossil fuel economy. Renewable energy like wind, solar, micro-hydro, bio-energy, tidal and wave all need to be promoted vigorously.

What should the Churches do?

Given the seriousness of the issue and the potential disaster for the planet, especially the poor, it must be addressed with urgency and long-term commitment. Unfortunately, it is seldom mentioned by religious leaders, especially in the Catholic Church. We need more

than the single paragraph which is found in the Compendium.

Maybe a recommendation might go out from this meeting to have a competent treatment of global warming developed at the level of the universal Church. The Churches have an important prophetic role to play in forming peoples' consciences and putting pressure on political and industrial leaders to take the threat involved in global warming seriously.

Use of Energy

The Church should do everything in its power to promote policies that conserve energy and that seek more sustainable, renewable forms of energy.

The Social Justice Statement of the Australian hierarchy for 2002 recognizes that global warming is an important issue for Australians. It states; *possibly the most disturbing environmental phenomenon of recent times is the threat of global warming. The majority of environmental scientists agree that the release of greenhouse gas emissions into the atmosphere is threatening to change our climate patterns, raise sea levels and harm life on earth.* It goes on to state that *as the worst emitters per person of greenhouse gases on the planet, Australians are particularly*

challenged in justice to reflect on the plight of our Pacific island neighbours.

Air Travel Cause Massive Pollution

Flying is a much more polluting form of transport than traveling for bus, train or private car. Air travel causes quite a lot of pollution, especially if it is a long flight. A simple way to calculate how much carbon dioxide is produced just multiply the distance in miles by 290g to arrive at the amount of CO₂ produced. For domestic appliances the average person in the UK uses almost 2 tonnes of CO₂ unless they are using a green source of electricity. A number of websites allow a person to offset their carbon burden by supporting green energy or an organisation that plants trees. One such organisation is www.climatecare.org and www.furtureforests.com . For example a one-way flight from London to New York cost one tree which a return journey to Sydney costs 6 trees.

One of the reasons why air traffic is increasing dramatically both for people and goods is that aviation fuel is not taxed and is VAT free. This is why by 2015 planes are expected to double their current contribution of three to five per cent to the global greenhouse effect. Furthermore, airplanes emit nitrogen oxides. These not only contribute to acid rain also affect the ozone layer because they are emitted at high altitudes. By 2015 scientists predict that half the annual destruction of the ozone layer will be caused by air traffic alone.

This has huge implications for organization and bureaucracy of the Catholic Church because it is so centralized. Will we be able to justify Synods, like the recent one in Rome, where all the bishops have to fly where other, when there might be less carbon intensive ways of organizing Church affairs. And maybe the spin off would be that local Churches would have to engage more whole heartedly in their own affairs as they determine how to articulate their beliefs, structure their worship, witness to gospel values and govern themselves might be a blessing in the long run.

Before you might be inclined to dismiss this as total nonsense be assured that we are going to have to learn to live in a less carbon intensive world because of a simple notion called 'peak oil'. This refers to the point when we are pumping more oil from depleted wells than we are discovering. Colin Campbell, a geologist and former executive vice-president of the oil giant Total, believes that a lot of the numbers for current reserves are flawed so that peak oil may be much closer than we think.

One stark way of putting it is to state this thesis is that if economic development continues at a pace in China by 2031 it will require 99 million barrels oil per day. Total world production is now on 84 million bpd. So the era of profligate of oil use which fuelled rapid economic growth and the development of industries like the aviation industry may well be my to any end.

I am not going to cover much else. All the ideas that surfaced in the Best Practice Workshops yesterday could help individual, communities and institutions address global warming issues and in the process save some money.

Renewable Energy

Tidal energy is another form of renewed energy which has great potential for many countries, especially an island like Ireland. This technology operates on much the same principles as wind energy comes from sea turbines which turn the blades. One advantage of tidal energy over wind energy is that it is predictable and thus guarantees a constant source of power. In Britain it is estimated that Britain could become self-sufficient in energy if tide, wind and wave power are developed to their full capacity.²⁴ The best sites for tidal energy are the areas between islands or in heavily indented coasts where there are strong tidal currents. Work for the design on the new turbine blades is at an advanced stage at the University of Southampton's sustainable energy research group.

²⁴ Paul Brown, 'Electricity from under the sea', The Guardian, February 10, 2003, page 8