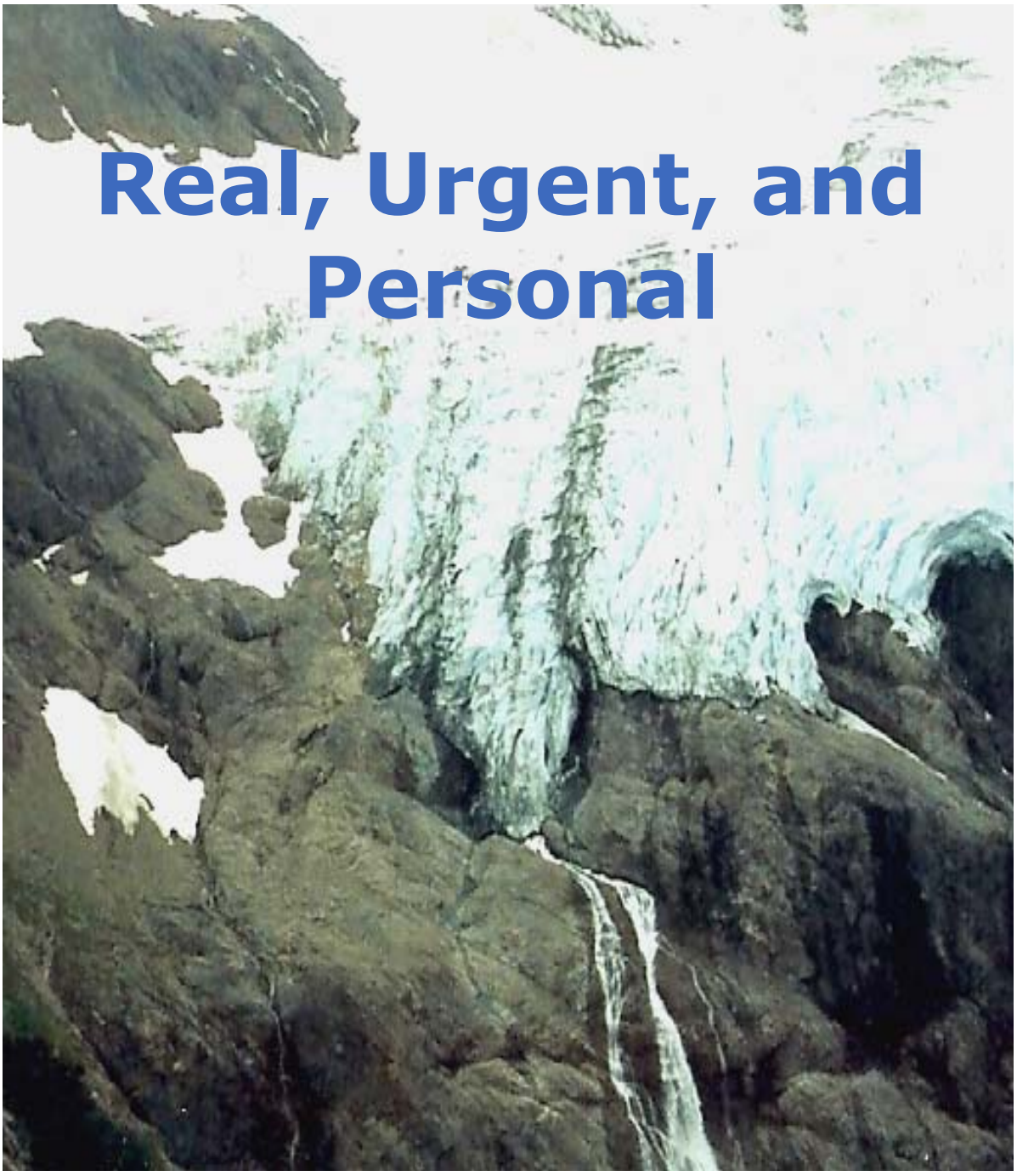

Real, Urgent, and Personal

A Study Guide to Global Climate Change For Secondary Students and Teachers

THE INTERCHURCH BIOETHICS COUNCIL

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This study was written by the members of the Interchurch Bioethics Council (ICBC), with grateful acknowledgement to guest contributor Dr Kevin Tate.

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This study, for use with school students, has been adapted from the original version. It is reproduced here with the permission of the ICBC.

Cover photograph was taken in Alaska in September 2007, and shows a glacier known to be retreating.

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Introduction

Climate Change has held a prominent place in the media, particularly during the past two or three years. The arguments as to whether it is a fact and is caused by human actions have been largely replaced by wide-ranging discussions on the measures proposed by government, industry and other bodies to limit future impacts.

So why another study on climate change?

This study addresses the question of why should we care? It doesn't appear on the face of it to be a doctrinal or theological question, so why should there be an Ethical approach to global climate change?

And even if we do care, what can a small nation like New Zealand do about it?

This booklet provides facts about climate change, what it is, how it is caused, the results and risks for the whole planet and for future generations.

There are discussions of the proposed measures to be taken by the New Zealand government and how they may affect all New Zealanders.

Because we believe that global climate change is real, urgent and personal, there will be the opportunity to discuss what individuals, communities and governments can do to mitigate the anticipated effects.

Real: from the industrial revolution to the present

Early investigations

The greenhouse effect was first investigated in 1903 by the Swedish Nobel-prize winning chemist, Svante Arrhenius, who showed that the concentrations in the atmosphere of trace gases such as carbon dioxide are responsible for warming the atmosphere. Carbon dioxide along with other trace gases including water vapour, methane and nitrous oxide, absorb solar energy radiated back through the atmosphere as heat. Life in its many wonderful forms has been able to flourish for millennia because of this effect, and human civilisation has been able to develop over the past 10,000 years in what has become known as the "Goldilocks zone" (in the words of the story, not too hot and not too cold, but just right).

Then came the industrial age

However, since the beginning of the industrial age, human activity including deforestation, our insatiable demand for fossil fuels (coal oil, gas) and food and fibre from animals, has been causing some of these gas concentrations to rise in the atmosphere. Atmospheric carbon dioxide concentration, for example, is now much higher than at any time in the last million years, and continues to rise steadily. The leading cause is our ever increasing use of fossil fuels, now accelerating as the giant economies of China and India rapidly expand, partly in response to demands from the developed world for cheap consumer goods. The effects of global warming are already well documented and are now evident everywhere (e.g., ice cap melting, glaciers retreating, heat waves, intensifying hurricanes, floods and droughts, species extinctions) (e.g., http://www.ipcc.ch, Gore, 2006).

What now?

Hardly a day passes without some aspect of global environmental change featuring prominently in our newspapers, on radio or on TV. Over recent years news on global change has migrated from small items in the body of the daily paper to front page news. Almost every day now there is new information about climate change, often in the guise of extreme weather events and their human impacts. There is good reason for this recent trend in media interest, and the underlying message is consistent and clear. Unless we urgently change the way we live, particularly those of us in the developed world, then our children, grandchildren, and the countless millions in the developing world will face an uncertain future of unthinkable hardships. The issue of global climate change is very complex, because it has to do with every aspect of life on planet Earth, from the teeming microbial world of the soil to our world of 6.5 billion people.

Just what does the greenhouse effect mean?

In order to understand the urgency for action and what needs to be done, it is necessary to understand how the greenhouse effect works. Firstly, it has to be said that without it, life on earth as we know it would not exist. Our planet would be about 33 degrees cooler than it is today. This results from the warming of the atmosphere by a group of minor gaseous constituents collectively known as greenhouse gases. This occurs when these gases (including carbon dioxide, methane, nitrous oxide, water vapour) absorb solar energy radiated back through the atmosphere from the land and oceans of the world.

Secondly, the greenhouse effect largely occurs in the troposphere, the thin atmospheric layer about 12 km in depth in which all life on earth exists and where our weather is made. This helps to explain why global warming is occurring. The troposphere clearly has a limited capacity for accommodating the increasing additions of these greenhouse gases. From the 18th century, increasing emissions from widespread agricultural and industrial activities and land use changes (especially deforestation) began to modify the Earth's "natural" greenhouse effect producing what we now call the "enhanced greenhouse effect".

This means that the Earth is being subjected to higher temperatures than was the case in pre-industrial times.

Urgent: some facts about global climate change

Climate Change - a very ominous warning

By far the most ominous warning that we are not managing the planet sustainably, is climate change. Recent scientific evidence sends a stark message that the time for us to act to avert a global catastrophe later this century is rapidly running out.

During 2007, the Intergovernmental Panel on Climate Change (IPCC) released the four-part Fourth Assessment summary report for policy makers on climate change (http://www.ipcc.ch). These reports are made about every 5 years, and represent the collective wisdom of several thousand scientists (authors and expert reviewers) from around the world. The first part of the Fourth Summary Assessment Report (Working Group I) dealt with the scientific evidence for climate change and was released in Paris on 27 February 2007. Others followed in March 2007 (Working Group II: Climate Impacts, Adaptation and Vulnerability), on May 2, 2007 (Working Group III: Mitigation of Climate Change) and on November 17, 2007 (AR4 Synthesis Report for Policy Makers).

Some of the key findings from the recent WG 1 IPCC report are:

- Warming of the climate system is unequivocal (air and ocean mean temperatures, snow and ice melting, sea level rise)
- Long term changes at all scales are occurring (weather extremes e.g., hurricane intensity, heat waves, droughts), increasing ocean acidity
- Palaeoclimate data show warming of the past 50 years is unusual, when compared to the past 1300 years
- Most of the warming is very likely due to the observed increases in atmospheric greenhouse gas concentrations
- Anthropogenic (caused by human activity) warming and sea level rise would continue for centuries even if greenhouse gas concentrations were to be stabilised

This report is characteristically conservative in what it has to say, being based on the work of several thousand scientists from around the world, and with input on the final wording from officials, including those from major oil producing countries.

Some of the very recent evidence on feedbacks, including, for example, rapidly increasing release of methane from the tundra in Siberia and Canada, and the escalating changes in ice sheet flows that appear to be accelerating sea level rise (New Scientist 10 March 2007), are not included.

The more recent IPCC Summary Reports on Climate Impacts, Adaptation and Vulnerability (Working Party II March 2007) and Mitigation of Climate Change (Working Party III May 2007) clearly indicate not only the extent and quickening rates of change, but also that we still have time to avert a global catastrophe if we are willing to act now using existing technologies, and new ones as these become available. In the recently released Synthesis report the overarching message is that there are real and affordable ways for us to tackle climate change. The underlying message is that unless we act quickly and decisively as a global community we will face a climate catastrophe by the end of this century.

Nobel Prize for International Panel on Climate Change

The work of the scientists who have contributed to the work of the IPCC over several years is now so widely endorsed that the IPCC and Al Gore were jointly awarded a Nobel Prize in 2007 for their contribution to our understanding of global climate change.

Some more facts about global climate change:

- The main greenhouse gases are methane from farm animals and waste, carbon dioxide from burning fossil fuels, nitrous oxide from soil and synthetic gases such as sulphur hexa-fluoride, perfluorocarbons and hydrofluorocarbons.
- Carbon dioxide levels in the atmosphere are at their highest in at least 650,000 years.
- Ten of the last 14 years were the hottest since records began in the 19th Century.
- In New Zealand, transport is our biggest energy user (40%) and since 1990, carbon dioxide emissions from transport have risen by 60%.
- Despite smaller families the average size car engine in New Zealand rose from 1.5L in the 1960's to 2.4L in 1990 and 3L in 2005
- .
- The world's rainforests are being felled at a rate of approximatley 40 hectares a minute.
- The global cost of losses from extreme weather events (droughts, floods etc) rose from US$5b in the 1970's to US$40b in 2000.
- The Himalayas provide more than half of the drinking water for 40% of the world's population. The Himalayan Glaciers on the Tibetan Plateau are now rapidly melting as a result of global warming.
- If all 6.5 billion of us could enjoy the same living standards as we do in New Zealand we would need three Planet Earths!

Questions to Discuss

What would you say to people who state that climate change 'is just a cycle'?

What do you see as the most important effects of climate change?

Personal: why should we care?

Many people across the planet, representing the full range of cultural and spiritual beliefs, commonly consider that human beings are the stewards of this world in which we live, and that we have a responsibility to care for 'creation'. For many of us, this means that we are moving away from an anthropocentric or human-centred attitude and recognising that we must care for all creatures. We have the knowledge and ability to think and plan that does not appear to be found in all living things and that places on us a duty of care for them and for coming generations.

The issue becomes a moral and ethical one. Should we not, as a matter of urgency, reduce our demand on the earth's resources now so that our children, grandchildren, and the many hundreds of millions living in the developing world, can avoid unthinkable hardships later this century? In New Zealand, for example, our land-based economy, society and infrastructure will increasingly be impacted by weather extremes. We will also face the prospect in a few decades of many millions of environmental refugees from the Asian subcontinent being displaced from their homes by fresh water shortages, rising sea levels and enhanced storm surges. Where will they go? Will we be able to cope with a flood of humanity arriving on our shores?

These moral and ethical questions are complex.

What is the New Zealand government saying?

Statement to Parliament in February 2007:

In February 2007, then Prime Minister, Helen Clark, said "More than any other developed nation. New Zealand needs to go the extra mile to lower greenhouse gas emissions and increase sustainability ….we face increasing pressure on our trade and tourism….."

In the recently released once-in-a decade report on our environmental performance, the OECD noted that our economy had grown by 30% since their last report; passenger car traffic had increased by 28%, agricultural production by 23% and industrial production by 13%. But they also concluded that our municipal waste generation is likely to have grown at the same rate as our GDP, and our carbon dioxide emissions have certainly grown by 24%. They concluded that "There is increasing public concern that New Zealand's clean and green image is waning: nevertheless, surveys show that this concern is not matched by a willingness to take personal action or accept the costs of measures to improve the environment"

What measures is the government proposing?

In early 2007 the Government announced that New Zealand would move to a position of Carbon Neutrality, but no timeframe or milestones for monitoring progress were given. This cannot happen in New Zealand without Government taking a firm lead; this will have to involve all political parties in a non partisan effort and willingness by each of us to make changes where possible in our lives. This has become an imperative not only for the reasons already outlined, but also for reasons of intergenerational equity, and to ease the disproportionately large burden that global change is having on the developing world. The recent announcement of a raft of policy measures by Government has provided a good start (www.climatechanmge.govt.nz). The intention is to implement these measures over a time spanning several electoral cycles. Their effectiveness in cutting our emissions and adapting to climate change will largely depend on ongoing commitment by future governments. Central to the recent announcements is the Emissions Trading Scheme (ETS) to use market mechanisms to reduce our emissions of all three major greenhouse gases (carbon dioxide, methane and nitrous oxide).

Biofuels Bill

The government has introduced a bill to implement the biofuels sales obligation (BSO) policy. The purpose of the Bill is to regulate and increase the use of biofuels in New Zealand. Increased use of biofuels is being encouraged in order to reduce New Zealand's net greenhouse gas emissions and to reduce our reliance on fossil fuels, such as oil, by the use of renewable fuels in the transport sector.

Biofuels can replace fuel like petrol or diesel, either 'neat' (100% biofuel) or as a blend. The most common biofuels are bioethanol and biodiesel, used to replace petrol and diesel respectively. Ethanol is made from fermentation and distillation of sugars and starches. Biodiesel is made from vegetable oil and animal fats such as tallow. The Biofuels Bill specifies that everyone who sells petrol or diesel must sell a specific amount of biofuels, 0.53% of their total petrol or diesel sales in 2008, increasing to 3.4% by 2012. The biofuel may be NZ produced or imported in order to conform to the requirements of the Biofuels Bill.

And herein lies the rub! This sounds like a good step forward, but there are problems associated with the production of biofuels. Globally, most ethanol is being produced from corn. This is resulting in a huge reduction in the amount of corn being produced for food. The production of corn requires large amounts of fertiliser and herbicides and the production of ethanol from the corn produces carbon dioxide and requires heat input for the distillation process. This is being provided in most instances by the burning of fossil fuel. Brazil is using ethanol produced from sugar cane almost exclusively instead of petrol. However, the burning of the cane fields to remove rats, and of sugar cane remnants to provide heat, is adding a large amount of carbon dioxide to the air. Also the growth of cane for ethanol production is forcing farmers to go further into the forests for farming land, which is resulting in the destruction of forests. So there are big questions to consider in adopting biofuels to replace fossil fuel use. These include questions about where we buy biofuels or how to produce our own biofuels. Adoption of biofuels by New Zealand to replace fossil fuel may be only a partial solution. Included in the Government's recently announced policy on climate change is an intention to achieve 50% reduction in our

transport emissions by 2040, partly by introduction of electric vehicles. This may be possible if the aim of achieving 90% of our electricity from renewable sources by 2025 is realised.

So there are a number of ways that we can adopt cleaner, healthier and ultimately cheaper alternatives to dependence on fossil-fuels, but there is a lot to consider in doing this. The use of green algae, which grow in the sea, is very promising as a source of substrate to make ethanol. It has the added advantage that it is taking up carbon dioxide continuously and producing ethanol by fermentation without the need for fertiliser and other products which utilise fossil fuels.

Question to Discuss

Identify the strong and weak points of the Biofuels Bill?

The Kyoto Protocol

New Zealand ratified the Kyoto Protocol in December 2002. This is an international agreement between 170 countries, which unfortunately do not at present include the US, Australia or China. A change in government may see Australia ratifying the protocol. This agreement commits New Zealand to reducing its average net emissions of greenhouse gases over 2008-2012 (the first commitment period of the Kyoto Protocol) to 1990 levels or to take the responsibility for the difference. The estimate of New Zealand's obligation at 30 September 2007 is $NZ717 million.

Question to discuss

How do you react when people say we should not belong to the Kyoto Protocol unless other larger countries like US and China join?

Carbon Credits

What are Carbon Credits?

The Kyoto Protocol requires caps or quotas on the maximum amount of greenhouse gases which each participating country can produce. In turn these countries can set limits on the emissions of installations allowed by businesses and organisations (called operators) within the country. Each operator would have an allowance of carbon dioxide or equivalent

greenhouse gas which they may produce. Operators that have not used up their quotas could sell their unused allowances as carbon credits, while operators which are about to exceed their quota can buy more allowances as credits. So carbon credits can create a market for reducing greenhouse gases by giving a monetary value to polluting the air. The precise nature of how carbon will be traded under the Kyoto Protocol is still being worked out, but several voluntary markets, including one operating in Europe for several years, are already trading carbon.

Is this just passing the problem around? The answer is 'No' because the sale of carbon credits can only happen if they have been produced as the result of 'additionality' i.e. a project which is 'beyond business as usual' and was only put in place because of a concern to mitigate climate change.

Examples:

1. A seller of carbon credits is a company that will offset emissions by planting a number of trees for every carbon credit a factory buys from them under an approved project. So the factory which is emitting gases is paying another group to go out and plant trees which will take up 20 000 tonnes of carbon dioxide from the atmosphere each year.

2. A seller may have invested in low-emission machinery and have a surplus of credits as a result. Another factory could make up for its emissions by buying 20 000 tonnes of allowances from the first factory. The cost of the new machinery would thus be subsidised by the sale of allowances. Both factories would submit accounts to prove that their allowances were met correctly.

Questions to Discuss

How could carbon credits help New Zealand industry?

How would it be if we had individual carbon credits?

We need to act on Climate Change issues now

It is important to have a very clear understanding of the costs – economic and social – of inaction. It is then important to appreciate the enormous opportunities that are available if we act now at individual, institutional, corporate and government levels. These encompass economic (e.g., lower energy bills), social (e.g., lower future health risks) and environmental opportunities. We need the ambition and resolve to create the right environment for the necessary changes to happen. This is where local, regional and national governments can provide leadership to facilitate change.

As individuals and communities, we need to make it clear to government at national, regional and local levels that we support measures that will reduce the effects of climate change. This is despite the fact that, in some instances, there will be financial costs as well as benefits, and possibly some inconveniences.

Question to Discuss

Consider the following statement. Decide if you substantially agree or disagree with it. You will need to justify your choice.

> *When considering climate change, we have a responsibility to put ethical values ahead of financial values.*

What can we as individuals do right now?

Here are some things we can do now without much effort to reduce energy consumption, while at the same time bringing other benefits, including to the household budget, and (often) improved health.

In the home

- Ensure your home is well insulated, particularly in the ceiling space and below the floor.
- Remove un-flued gas heaters that produce large amounts of water in winter.
- If you have pre-teenage children, consider installing solar water heating. As the kids hit the teenage years, and discover the shower, power bills can soar. Solar water heating in many areas of New Zealand can save up to 40% of your annual power bills.
- Make sure your hot water cylinder is well insulated.
- At dusk close the curtains. Replace conventional incandescent bulbs with energy efficient ones wherever possible
- Eat less meat and grow at least some of your own vegetables

Out and about

- Walk, cycle and take public transport wherever possible.
- Keep your car well tuned and the tyres inflated correctly.
- Limit the number of journeys you take by car to essential trips only and, wherever possible, offer someone a lift.
- When next replacing your car, make energy efficiency your top criterion for choice. It's a sobering fact that over the past decade or so New Zealand family sizes have fallen but the engine size of our cars has on average more than doubled. The International Energy Agency recently announced we have almost arrived at "peak oil", when we can expect oil prices to steeply rise.
- Drive carefully, avoiding rapid acceleration or braking.
- If you are travelling overseas consider offsetting your emissions by giving money to plant trees (see e.g., www.carboNZero.co.nz)

Waste

Each New Zealander produces over a tonne of waste each year.
The catch words here are: reduce, reuse and recycle.

- Use cloth bags for supermarket shopping rather than plastic ones.
- Compost organic waste rather than use municipal collection.
- Purchase goods wherever possible that are energy efficient, locally made, last longer and that have minimal packaging.

Community initiatives

- Lobby your local representatives in regional and national government to provide responsible leadership by making decisions that facilitate emissions reduction and lessening of environmental impacts. This might include e.g., shifting the emphasis

from building more roads to increasing investment in public transport, future-proofing the built and peri-urban environments against increases in storm intensities, flooding, and droughts.
- Encourage ethical investment, where the effects of these investments don't enhance environmental degradation or increase greenhouse gas emissions.

All these examples are within our power to implement now. While these changes will greatly help if we all contribute, other measures will also be necessary to achieve the cuts in emissions that are needed to avoid a climate catastrophe later this century. These include: planting more forests and stopping deforestation in tropical and boreal regions, accessing a much greater proportion of our total energy needs from renewable resources, and changes in current policy, institutions and practices.

Questions to Discuss

What can you as an individual or household do to reduce your impact on climate change?

What can we implement in our school to lessen our impact on climate change?

A final thought:: The issue of climate change continues to develop. We need to stay alert to understand what is happening, to be able to comment with insight on the proposals as they are presented and to see what opportunities there are for us to contribute constructively to the issue. Be aware who the current Minister for Climate Change Issues and/or the current Minister for the Environment is. (The Ministry for the Environment is responsible for coordinating climate change policy across government. The Treasury, the Ministry of Agriculture and Forestry, the Ministry of Transport, the Ministry for Economic Development, the Ministry of Foreign Affairs and Trade and the Energy Efficiency and Conservation Authority are leading policy implementation.)

Regularly review the Government's policies on climate change.
These can be found at www.climatechange.govt.nz

Further Study on an Ethical Response to Climate Change

Introduction

Environmental ethics focuses on what we should do and be disposed to do regarding nature or the material universe. As responsible citizens we recognise a responsibility to all of creation, both to generations of humans now and to come, and towards non-human creation. The crisis which is known as global climate change is an environmental, cultural, theological and social issue.

Discussion One: Climate Change and the Vulnerable: the Poor and Future Generations

Themes: Basic to the debate on climate change is the definition of the extent of our moral community. Is it limited to our species alone, or to all of creation? What is our obligation to future generations? When the issues of eco-justice conflict with those of social justice, how do we prioritize our decisions when a win/win situation is impossible?

The extent of the moral community is a major point of ethical debate. If our moral community is limited to our species, as a more mechanistic view of creation supports, then using natural resources and animal and plant life as commodities is permissible. If our moral community extends to all of creation, then what is right or good for humans is limited by what is right and good for other species and the earth itself.

If natural resources and other creatures are not commodities but covenantal partners, how should we demonstrate this partnership in our private and public lives?

In Judaism, social justice connects with eco-justice. For example, the land was left fallow, uncultivated every seven years as a sign of Sabbath rest for the land itself. In addition, a corner of each plot of cultivated land was not harvested so that the poor could still find food. According to the Jubilee tradition, all created and social institutions were restored to an equitable and healthy relationship with one another.

In Maori, perspectives exist that aim to conserve resources. *Tapu* describes certain resources, places and items sacred and beyond casual use. *Rahui* prevents the over-cultivation or use of scarce resources.

Questions to Discuss

How may we keep these principles in mind when making life choices

What is or should be *tapu* or *rahui* today with current climate changes?

At issue is the development of moral principles governing our duties and virtues toward both those in present need and toward future generations – human and non-human. This becomes critical when there are conflicting interests. For example, when an endangered species' habitat is wanted for economic development, do the present economic benefits justify threatening the future generations of a species?

This is not a new issue. Recent technological advances and the rapidly increasing human population have emphasized the seriousness and irreversible nature of potential human impact.

The most vulnerable are the poor – particularly those in developing nations, and those who have no voice, the unborn future generations. While we in the wealthier nations can do a number of things to avoid the immediate consequences of climate change, the inability to grow crops and consequent famine, will affect those who have the least, the most.

When we review the news on the Pacific Island situation of well water and soil becoming salty with the rise of sea level, with the extreme droughts happening in Australia, with the spread of tropical and semi-tropical diseases into moderate climate areas, we see examples of how wealthier people are able to moderate the effects of climate change more than the poorer nations.

On an ethical level, human actions affect future generations, but now the potential for our actions either blessing or cursing those who do not yet exist has magnified. No longer is the concern about a particular group or species, but about the entire eco-system and the well-being of all future generations.

Questions to Discuss:

How do we determine the likely impact of 'today's' actions upon 'tomorrow's' generations and environment?

If the impact involves quality of life for people living now or future generations, what values, interests and commitments do you believe should operate?

What policies would you support that expand the notion of the Common Good to all nations, creatures and the creation?

Activities:

In silence, begin writing down a list of the resources you have used in the past 24 hours.

Now write out what changes you will instigate over the next week to lessen any negative environmental or social injustices that your resource use may cause.

Take time to consider particular people, creatures and areas of the earth affected by social and eco injustice.

Discussion Two: Are we our brother's keeper?

"Am I my brother's keeper?" and it's variations, is a widely used saying. Indeed, President Barack Obama used this notion during his recent campaign for the White House. This saying originates from the story of Cain and Abel, the two sons of Adam and Eve in the Christian, Islamic and Jewish traditions.

You may like to read Genesis 4:1 – 10.

Questions:

What stands out for you in the story of Cain and Abel?
Does the story have meaning for you today?

You could then consider Genesis 2:15.

"The Lord God took the human and put him in the Garden of Eden to till it and keep it."

Having a commodity attitude of natural resources affects how we use them. The pre-industrial view of creation and creatures as either co-inhabitants or inheritance resulted in a more respectful use. Biblically, humans were created to balance the commands of tilling and keeping the creation.

The Hebrew words for till, *'abad*, and keep, *shamar*, are to be combined and balanced in Eden (Hebrew for "delight").

Questions:

Outside of Eden, Cain and Abel divide rather than balance the two charges. What are the consequences of lifestyles based on one or the other of these?

In the Bible, *'abad* is translated "till", "work", "enslave", "compel" and "transgress".

Shamar is translated "keep", "guard", "protect", "attend to", "regard", "reserve", "preserve" and "keep safe"

Reread Gen 4:1 – 10. Does the phrase "Am I my brother's keeper?" become more poignant?

Read Gen 6:19 – 20, God's charge to Noah. He is to "keep" those in his care safe. From these examples, the biblical tradition prioritises "keeping" over "tilling". Preserving and protecting life is more in accord with the purpose God gives humans.

Similarly, Islam requires believers to follow the principles of balance and conservation because these are the basis of sustainable living. The notion of trust (*amana*) – that as the pinnacle of Allah's creation, we as humans are accountable for the protection of the environment and looking after creation in trust for future generations - is an important component of Islamic environmental theology.

Follow-Up Activities:

As consumers, we use household cleaning products including detergents and soaps; personal hygiene products such as shampoo, shaving creams and anti-perspirants; and enhancement products including perfumes and makeup. Many of these products contain toxic chemicals.

Cross-curricular Ideas: (Science, Mathematics, Economics, English, Art)

Identify and list the chemicals in standard house-hold and personal care produces. What toxic effects may these chemicals have?

Investigate non-toxic ("green") house-hold cleaning, personal hygiene and make-up products.

Compare and contrast the cost of these with standard items.

Design and test your own "personal" or "household" care product.

Design and promote a booklet outlining where non-toxic house-hold and personal care products may be purchased. You could expand your booklet by include Climate Change information and ways households may reduce their carbon footprint etc.

Market your booklet and donate money raised to an eco-justice charity.

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Appendix

The Interchurch Bioethics Council (ICBC)

The Council was set up in 2000 by three churches: Anglican, Methodist and Presbyterian as the Interchurch Commission on Genetic Engineering, with the purpose of making submissions on behalf of the churches to the Royal Commission on Genetic Modification (RCGM). Since then, issues of public concern which were outside the brief of the Royal Commission have been raised, such as human reproductive cloning and the use of embryonic stem cell for research purposes. In 2002, the Interchurch Commission on GE was re-named the Interchurch Bioethics Council and its brief was enlarged to address such issues.

We are mindful that our brief is to consider biotechnology from the point of view of spiritual, ethical and cultural dimensions. Current topics include this study, and Pre-birth Testing of Embryos-Who Decides? These study guides may also be found on this web-site.

Topics and issues are brought to the attention of the ICBC by the media, by members of the churches, by government agencies and by information on websites and in e-mails from interested individuals.

We welcome comments from all of these sources.

Terms of Reference of ICBC

1. To provide opportunities for consultation and dialogue with church members and the community generally on the ethical, theological, spiritual and cultural issues in the use of biotechnology.

2. To take an educational role for the Anglican, Methodist and Presbyterian churches on the above issues.

3. To make submissions and comments to Government, to the New Zealand Bioethics Council and other relevant bodies on the above issues.

4. To report at least annually to the three churches.