

# Global Bits

RESOURCE

Change for a just world

ISSUE 10

CLIMATE CHANGE



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### Global Education in the Community

- Starts from people's experiences and encourages their personal, social and political development.
- Works on the principles of non-formal education and offers opportunities that are educative, participative, empowering and designed to promote equality of opportunity.
- Is based on an agenda that has been negotiated with the relevant community.
- Engages the community in critical analyses of local and global influences on their lives and their larger communities.
- Raises awareness of globalisation within an historic context, and encourages an understanding and appreciation of diversity locally and globally.
- Encourages an insight into the relationships and links between the personal, the local and the global and ensures that these are based on equity and justice.
- Insists that the peoples and organisations of the North and South are seen as equal partners for change in an interdependent world.
- Encourages active citizenship by giving people the opportunity to participate in actions, and build alliances, that seek to bring about change locally and globally.

**Global Bits** is printed three times a year providing information and ideas for exploring global issues and how they impact on communities in both Aotearoa New Zealand and all around the world. Its accompanying poster contains additional activities suitable for use by youth workers and other community educators.

**Global Bits is free to community educators and all others with an interest in global issues.** If you would like to order a larger amount of any issue, please contact the Global Education Centre. Nominal charges may apply to help cover production costs.

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## About the theme of this issue

Every day we are bombarded with messages about the state of the world – from famine in the Sudan to ever-increasing conflict in the Middle East. But of all the tales of doom and gloom, *climate change* must surely be the most immense, terrifying and hotly debated issue of all.

It's time to face up to the facts: *denial of human induced climate change can now be filed away as an historical curiosity... there is no debate.*

Human induced climate change is *fact*, and it's time we all looked at its background science, potential consequences, possible remedies and at the vested interests who are working so hard behind the scenes to undermine what is, no doubt, the most serious challenge the human race has ever encountered.

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Pick up a newspaper on any day of the week, and chances are you'll see an article about climate change. One moment we're being told that the end of the world is nigh... and the next we're assured the scientists have got it wrong – that climate change is part of a normal cycle in the history of the world. It's all so confusing; so hard to know what to believe.

Much of this confusion comes from the untiring PR activities of a small but vocal group of climate sceptics who hotly deny the need for climate balance protection measures. Why? It's really quite simple... because these industry-funded organisations are out to protect their piles of gold at the expense of the well-being of the entire planet.

**Make no mistake – the debate is over...** the world's scientific community has again and again arrived at the same key conclusions:

- 1 The atmospheric CO<sup>2</sup> (carbon dioxide) concentration has risen strongly since about 1850, from 280 ppm (a value typical for warm periods during at least the past 400,000 years) to 380 ppm.
- 2 This rise is caused by humans (hence 'human induced') and is primarily due to the burning of fossil fuels, with a smaller contribution due to deforestation.

3 CO<sup>2</sup> is a gas that affects climate by changing the earth's radiative budget: in other words, an increase in its concentration leads to a rise in near-surface temperature. If the concentration doubles, the resulting mean (average) global warming will very likely be between 1.5 and 4.5°C.

4 Across the whole of the 20th century, the global climate warmed by less than 0.6°C. But temperatures in the past ten years have been the highest since instrumental records started in the 19th century and for at least several centuries before that.

5 NASA reports that 2005 was the warmest year since the late 1800s, with highest temperature increases measured in Alaska, Siberia and the Antarctic Peninsula.<sup>1</sup>

6 Most of this warming is due to the rising concentration of CO<sup>2</sup> and other *anthropogenic* (caused by humans) gases; a smaller part is due to natural causes, like fluctuations in solar activity.

7 According to scientists from the National Oceanography Centre, the Atlantic Ocean current has slowed by more than 30%<sup>1a</sup>. See page 6.

As Professor Stefan Rahmstorf, from Potsdam University, says<sup>2</sup>: *"These findings are based on decades of research and thousands of studies – it is almost inconceivable that they could be overturned by a few new results."*

This extraordinary consensus is seen in the statements of many international and national professional bodies such as the Intergovernmental Panel on Climate Change, the American National Academy of Sciences, the American Geophysical Union (AGU – the world's largest Organisation of Earth scientists), the World Meteorological Organisation (WMO), the meteorological organisations of many countries (e.g. a joint declaration by the German, Austrian, and Swiss meteorological societies), the scientific Advisory Council on Global Change (WBGU) set up by the German government, and others.

"Civilisation, the thin film of order that humans cast around the chaos of events, is the product of an unusually benign period in our planet's climate... It is now clear beyond reasonable doubt that burning coal, oil and gas as carelessly as we do currently will bring this benign period to an end."

(J. Ashton, T.Burke.)



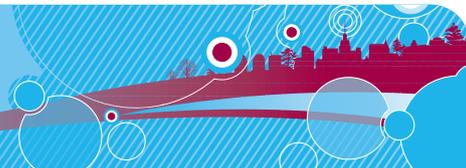
**How much do you *really* know about climate change?**

**How much are you prepared to change your lifestyle to save much of the life on this planet?**

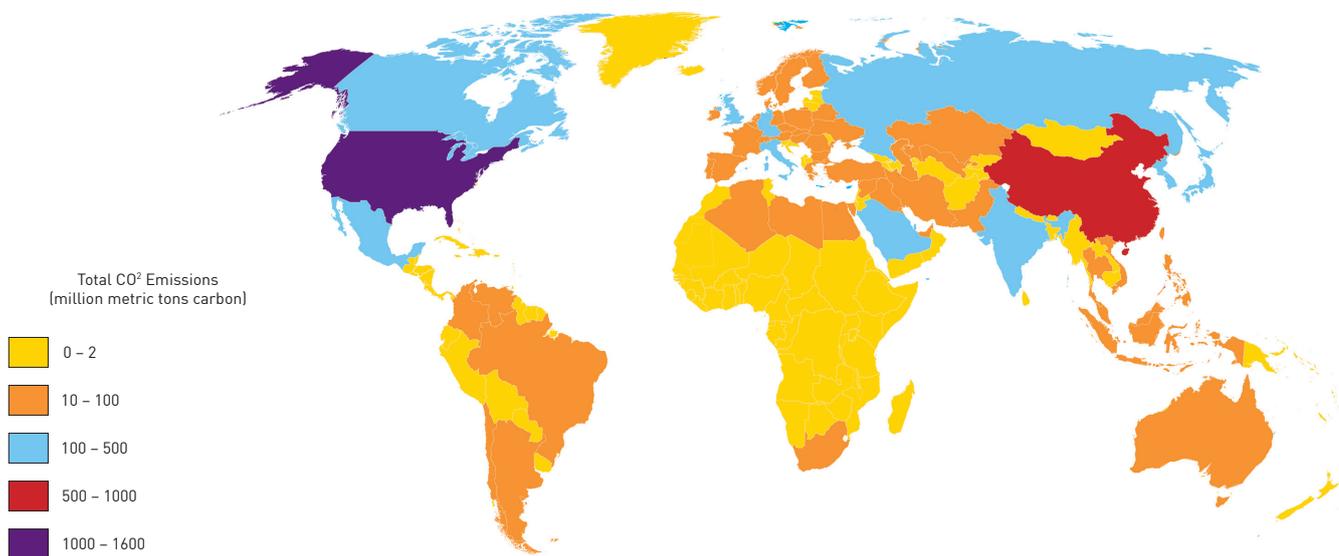
<sup>1</sup> Source: Friends Of The Earth [www.foeeurope.org/climate/evidence.htm](http://www.foeeurope.org/climate/evidence.htm)

<sup>1a</sup> as above

<sup>2</sup> This, and other findings are sourced from Stefan Rahmstorf, Professor of Physics of the Oceans at Potsdam University – from his paper *'The Climate Sceptics'* <http://www.ozean-klima.de/>

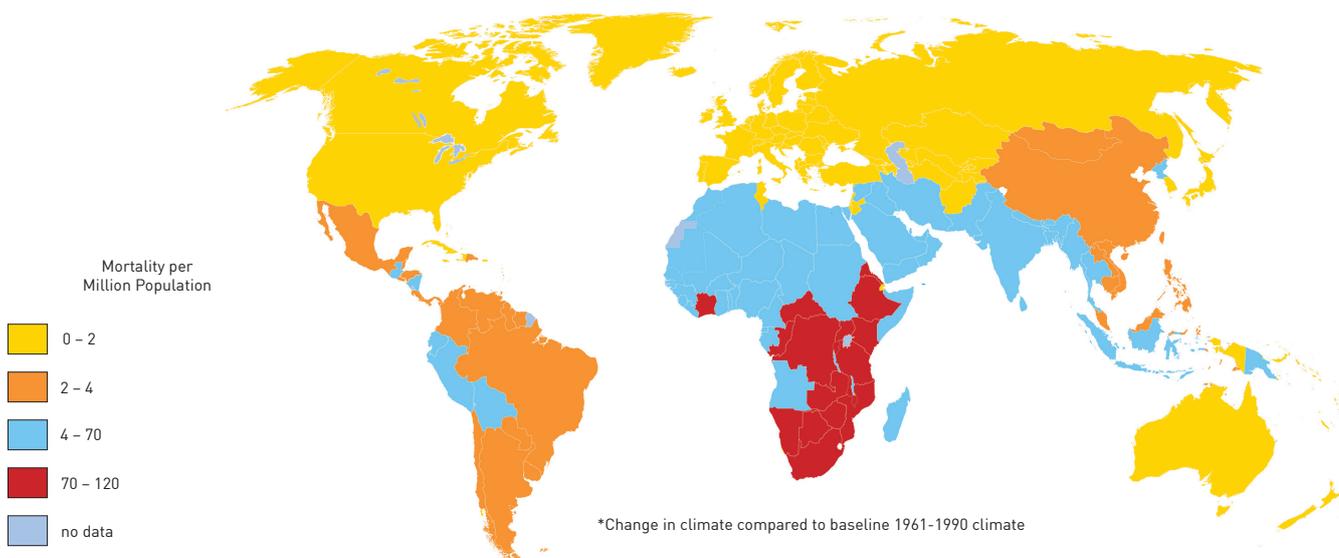


## Total CO<sub>2</sub> Greenhouse Gas Emissions in the Year 2000, by Country



Data Source:  
Marland, G., T.A. Boden, and R.J. Andres. 2003. Global, Regional, and National Fossil Fuel CO<sub>2</sub> Emissions. In Trends: A Compendium of data on Global Change. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tenn., U.S.A.  
Maps produced by the Center for Sustainability and the Global Environment (SAGE)

## Estimated Deaths Attributed to Climate Change in the Year 2000, by Subregion\*



Data Source:  
McMichael, J.J., Campbell-Lendrum D, Kovats RS, et al. Global Climate Change. In Comparative Quantification of Health Risks: Global and Regional Burden of Disease due to Selected Major Risk factors. M. Ezzati, Lopez, AD, Rodgers A., Murray CJL. Geneva, World Health Organization, 2004  
Maps produced by the Center for Sustainability and the Global Environment (SAGE)

In order for us to understand the science and consequences of climate change properly, it is essential that the images created by the language we use are clear and not misleading.

With this in mind, let's examine some of the language and analyse its usefulness in discussing climate change:

## Energy

How many times have you heard that we must *conserve energy*? Or that we're approaching an *energy crisis* or an *energy shortage*? What about *renewable energy*? *Positive energy*? *Waste energy*?

In fact, *energy can neither be created nor destroyed, but can only be converted from one form to another*<sup>3</sup>.

Energy is constantly being transformed i.e. changing from one form to another, and comes in many forms, providing us with a wide range of options for its use. The most significant form of energy vital for the survival of our planet is from the Sun. When you talk about electricity, fossil fuels and other 'fuels', you are talking about *ways of storing the energy created from these fuels – not 'energy' itself*. We cannot 'conserve' energy, 'save' energy, 'waste' energy or 'lose' energy – we can, however, *conserve or waste useful forms of energy and fuels*.<sup>3a</sup>

## Energy Crisis

Any 'crisis' is created by our choices and by our use of

**Energy** is the ability or capacity to do work. Several forms of energy include heat and chemical energy; other forms of energy are associated with the transmission of light, sound and electricity.

<http://library.thinkquest.org/3659/energy/>

(and/or over-reliance on) certain forms of energy – not by any lack of energy. Energy is abundant.

## The Greenhouse Effect

The term 'greenhouse' has major effects on our perception. The key image 'greenhouse' brings to mind is of a human-made building that allows us to care for plants out of season, out of region and with faster life cycles. It brings to mind a safe and protected environment – where wind, rain, snow and hail are almost non-existent inside. It's hard to motivate people with the notion that 'greenhouse' is anything other than safe and controllable. How about trying *CO<sub>2</sub> blanket*, *thermal blanket*, or *heat-trap*? Besides, it's not what we should be worrying about – if we didn't have a well-operating *thermal blanket*, we would all be dead! Without the atmosphere trapping heat from the sun inside our atmosphere, we may as well be living on Mars (see page 6).

## Greenhouse gases

If we ditch the greenhouse image, then let's call these

trace gases what they really are – *warmer trace gases!* (See page 6 for further explanation.)

## Global warming

How many times have you heard someone ask "*how come we're supposed to be worried about global warming when there are more storms and cold weather?*" If we use the term human induced climate change, this confusion immediately disappears.

The climate *is* changing because the average temperature of Earth's surface is heating up – and the consequences are a worldwide and potentially devastating change in the world's weather patterns.



What if we chucked out the term *global warming* or even *climate change* and replaced it with words that really expressed what's going on here? How about:

**Climate Crisis**

or

**Planetary Emergency?**

<sup>3</sup> Source: [www.bonusjoules.co.nz/ClimateChange/key\\_concepts/](http://www.bonusjoules.co.nz/ClimateChange/key_concepts/)

<sup>3a</sup> as above

**The atmosphere of Earth** can be described as having four distinct layers, with the lowest part known as the **troposphere**. It extends about 12 kilometers above the Earth's surface and contains 80% of all the atmosphere's gases. The bottom third of the troposphere contains half of all gases in the atmosphere and is the only part that is breathable. It is warmest at ground level.

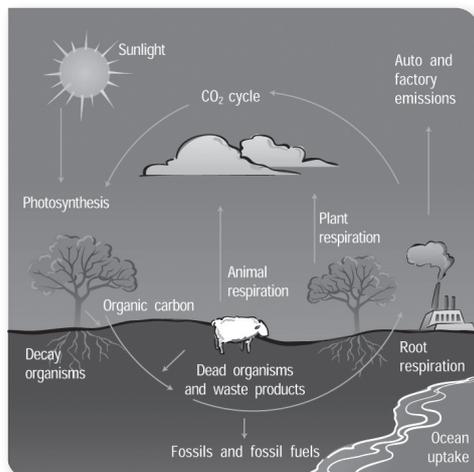
The next layer is the **stratosphere**. It gets hotter the higher up it goes. This is because the upper stratosphere is rich in *ozone* (a gaseous form of oxygen), which captures the energy of ultraviolet light, re-radiating it as heat. It is distinctly layered and fierce winds circulate within it.

Fifty kilometers above the Earth's surface is the **mesosphere**, the coldest portion of the entire atmosphere. Above this lies the atmosphere's final layer, the **thermosphere**, which is a thin dribble of gas extending far into space<sup>3</sup>.

During the day energy arrives in the form of sunlight, and is stored in the form of heat, both at ground level and in the atmosphere. At night the Earth releases this energy back into space in the form of infrared radiation. Trace gases in the atmosphere block this infrared radiation from escaping directly from the atmosphere into space.

**CO<sup>2</sup>**: Of all the trace gases, CO<sup>2</sup> is the most plentiful and plays a central role in keeping us from freezing. If we didn't have any trace gases, the Earth would be too cold to live on, like Mars.

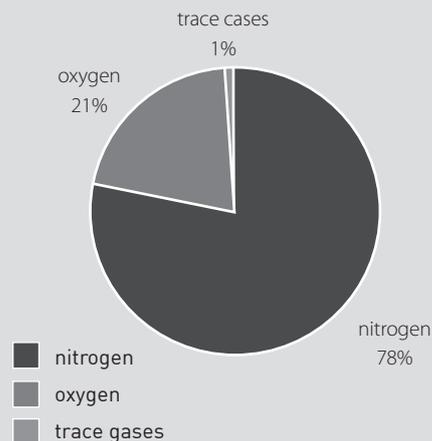
**The 'warmer' trace gases** retain heat, directly from the Sun, and mainly from the heat given off by the Earth. They act like an invisible thermal blanket that increases air temperature. Without this natural thermal blanket the average surface temperature on Earth would be -18°C instead of a pleasant 15°C, as it is at present. The more of these



## Scientists tell us that air contains approximately:

- 21% oxygen } these three gases make up
- 78% nitrogen } 99.95% of the air we breathe
- 0.9% argon } as clouds (also considered a trace gas)
- 0.1% – 2% water vapour in the air and
- 0.036% carbon dioxide (CO<sup>2</sup>) and tiny amounts of other gases, including methane (CH<sup>4</sup>) and nitrous oxide (N<sup>2</sup>O), make up what is known as trace gases (also known, less correctly as the *greenhouse gases*)
- Ozone, one of the *trace gases*, makes up just 10 molecules in every million – but without the shielding effect we would soon go blind, die of cancer or any number of other problems.

## Approximate Composition of Air



NB: "Trace gases" includes carbon dioxide (0.036%) and small proportions of other trace gases including argon and water

gases we put into the air, however, the thicker the blanket becomes – until this causes a change large enough to affect the whole of the Earth's climate.

Many trace gases are in some way or another generated by human activity. CO<sup>2</sup> is very long-lived in the atmosphere and around 56% of all the CO<sup>2</sup> humans have released by burning fossil fuel is still in the atmosphere, directly and indirectly causing around 80% of all global warming.<sup>4</sup>

**Methane** is the second most important trace gas after CO<sup>2</sup>. Although making up just 1.5 parts per million in the atmosphere, its concentration has doubled over the last few hundred years. It is created by microbes that thrive in oxygen-less environments such as stagnant pools and bowels – which is why it is found in abundance in swamps, farts and burps – hence, the debate with farmers over a 'fart tax' to reduce excess methane emissions! NIWA<sup>5</sup> states that methane produced by human activities accounts for about 19% of increased warming.

**Nitrous oxide** (laughing gas) is 270 times better at trapping heat than CO<sup>2</sup> and lasts 150 years in the atmosphere. Around one third of our global emissions come from burning fossil fuels, and the rest from

burning biomass and the use of nitrogen-containing fertilizers. There is now 20% more nitrous oxide in the atmosphere than at the beginning of the Industrial Revolution.

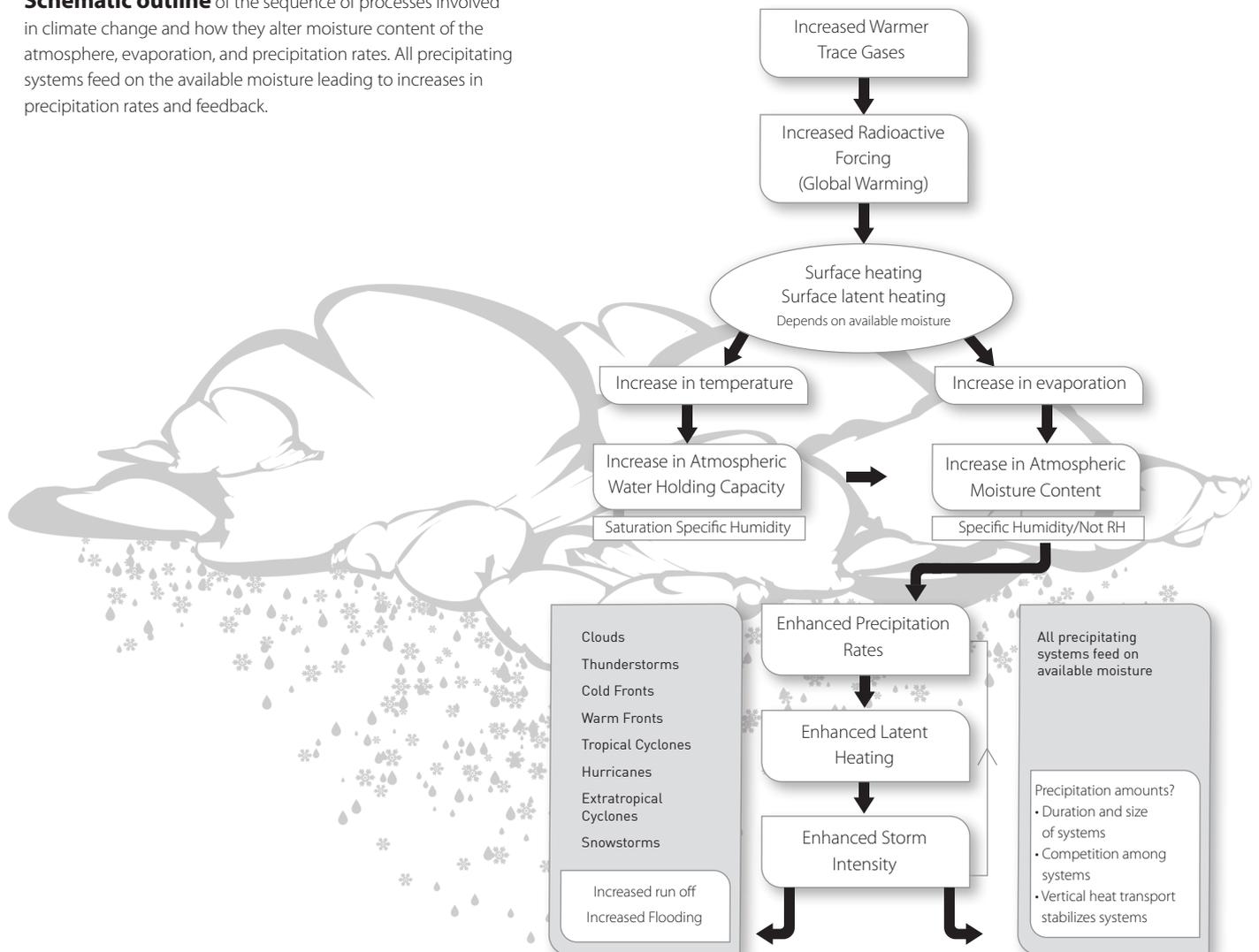
Another factor in the climate change equation is the possible abrupt collapse of **The Gulf Stream**. There is nothing straight-forward about this – if it stops (and it can do so with little warning) Europe could be thrown straight back into another ice-age. If the Gulf Stream's saltiness is diluted with fresh water (from say, the melting of the glaciers or ice-caps) it does not sink as it cools, and no more warm water is drawn northward in its wake. Not only is climate affected by this, but cold sea water can hold more carbon than warm sea water so, as the ocean warms, it becomes less able to absorb CO<sup>2</sup> – adding to the problems in an ever-increasing cycle of warming and climate change.

<sup>3</sup> p20 *The Weather Makers* Tim Flannery

<sup>4</sup> p20 *The Weather Makers* Tim Flannery

<sup>5</sup> National Institute of Water and Atmospheric Research <http://www.niwa.science.co.nz/ncc/clivar/fpcc>

**Schematic outline** of the sequence of processes involved in climate change and how they alter moisture content of the atmosphere, evaporation, and precipitation rates. All precipitating systems feed on the available moisture leading to increases in precipitation rates and feedback.



Source: Kevin E. Trenberth, National Centre for Atmospheric Research, 1998.

**Te Ao Turoa – Māori view of the world:**

Te Ao Turoa is the Māori term for the environment. The relationship of Māori with Te Ao Turoa is specifically one of *Kaitiakitanga* (stewardship or guardianship), since this relationship uses whakapapa to link all things, both in the natural environment and in the social world: Māori have the same origin as the elements protected and treasured within Te Ao Turoa. Therefore, the wellbeing of Te Ao Turoa is inextricably linked with Mana Māori and is an essential element in the identity and integrity of the people. Without the natural environment, the people cease to exist as Māori.

Source: Te Aratitia Learning & Development 2003

**Interconnection of ideas**



**Interconnection between the people, their actions, and the planet.**

**Gaia – James Lovelock’s view of the world:**

In 1979 mathematician James Lovelock published a book, *Gaia*, in which he argued that the Earth was a single, planet-sized organism. The atmosphere, he said, is Gaia’s great organ of interconnection and temperature regulation. According to writer Tim Flannery, the most compelling reason to support the Gaia hypothesis is the idea that if someone believes in Gaia, they see everything on Earth as being intimately connected to everything else... in such a system, pollutants cannot simply be shunted out of sight and forgotten, and every extinction is seen as an act of self-mutilation.

“Buried around page seven of your newspaper, you might find the occasional story about climate change, along the lines of “Global warming: bad news for polar bears”... the problem is this: the steady stream of stories about polar bears and the like has a negative effect: it causes people to think of climate change as a purely environmental issue. Of course, it isn’t: *climate change presents serious economic, political and health risks.*”

Jon Miller<sup>6</sup>

Climate change action is not just concerned with changing the way we go about our daily lives, but is also about *changing mindsets*. Only by acknowledging the truth and scope of its potential impacts can we start making the kinds of decisions necessary to reduce emissions and to adopt more ecologically sustainable behaviour.

## Just what are the consequences of thermal build-up in the atmosphere?

### Climate pattern changes

- **Warmer temperatures** Model projections suggest an increase in global mean surface temperature of between about 1°C and 3.5°C by 2100. Since 1980, the Earth has experienced 19 of its 20 hottest years on record, with 2005 and 1998 tied for the hottest and 2002 and 2003 coming in second and third.

- **Drought and wildfire** Greater evaporation could



Photo of a wildfire in the Bitterroot National Forest in Montana, United States, on August 6, 2000 by John McColgan

intensify drought conditions and increase the risk of wildfires. This will impact on the animals and eco-systems within wildfire zones. Wild-land fires annually burn an area half the size of Australia and generate nearly 40% of total human-created carbon dioxide (CO<sub>2</sub>). Their impact in terms of deforestation, climate change and loss of biodiversity is significant. Drought also has impacts on human health, access to water and food production. The year 2003 was one of the worst in history, in terms of loss of human life and damage to the environment and infrastructure through drought and wildfire.

- **More intense rainstorms** Warmer temperatures increase the energy of the climatic system and lead to more intense rainfall in some areas (while others will have a serious *decrease* in rainfall). The likely consequences include severe flooding and erosion,

mudslides, and water-borne diseases. Scientists<sup>7</sup> are predicting more extreme rainfall and greater flooding in this century, particularly at northern latitudes—across Canada, Alaska, Northern Europe, and Northern Asia – regions that already receive the most rain. The equatorial tropics and Southeast Asia are also likely to have increased rainfall and flooding.

- **Deadly heat waves** More frequent and intensive heat waves could result in increased heat-related deaths and illnesses. For instance, in 2003, extreme heat waves caused more than 20,000 deaths in Europe alone.
- **Spread of disease** As well as the health effects from extreme weather conditions, climate change is expected to increase the potential geographic range and aggressiveness of tropical diseases such as malaria, dengue, yellow fever and viral encephalitis. Disease-carrying mosquitoes are spreading as climate-shifts allow them to survive in areas they currently do not – for instance mosquitoes carrying dengue fever were previously limited to elevations of 3,300 feet but recently appeared at 7,200 feet in the Andes mountains of Colombia.

### Warmer water

- **More powerful and dangerous hurricanes** Warmer water in the oceans pumps more energy into tropical storms, making them more intense and potentially destructive. For instance, the number of category 4 and 5 storms (the big ones!) has greatly increased over the last 35 years, along with ocean temperature. 2005’s Hurricane Katrina (the sixth-strongest Atlantic hurricane ever recorded) is just one such example.

- **Melting glaciers, early ice thaw** Rising global temperatures will speed the melting of glaciers and ice caps, and cause early ice thaws on rivers and lakes.

According to NASA, the polar ice cap is now melting at a rate of 9% per decade.

Arctic ice thickness has decreased 40% since the 1960’s. This affects all the layers of life in the



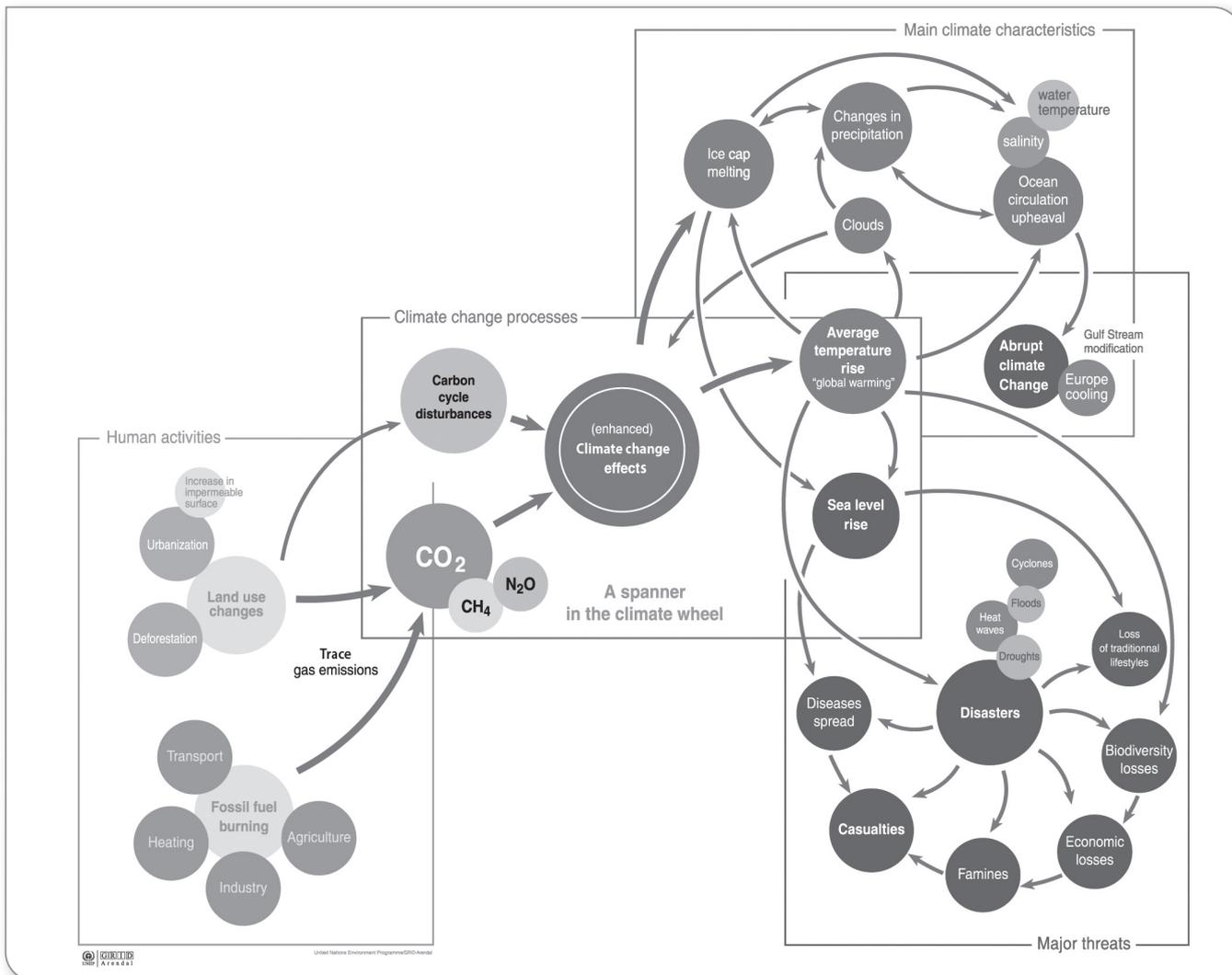
Hurricane Andrew  
Source: NASA

ecosystem, with many species, such as penguins, polar bears and krill (the main food source for many marine mammals) at risk.

- **Sea-level rise** Current rates of sea-level rise are expected to increase as a result of both thermal expansion of the oceans (water expands at higher temperatures) and partial melting of mountain glaciers and the Antarctic and Greenland ice caps. Consequences include loss of coastal wetlands and barrier islands, and a greater risk of flooding in coastal communities – with small Pacific Island countries like Tuvalu and low-lying countries such as Bangladesh particularly vulnerable. Model projections for increases in global sea level by 2100 range from about 15cm to 95 cm.
- **Water shortages** One of the most severe consequences of climate change will be the effects on water resources, including both supply and demand. Climate change experts<sup>8</sup> have found that at least one-sixth of the world’s population, including much of the industrial world, appeared vulnerable to water shortages brought about by climate change. Higher salt levels in water supplies will also cause problems.

<sup>6</sup> ‘Selling climate change’ Jon Miller 23.5.2005 <http://www.openDemocracy.net>

<sup>7</sup> published in the January 31 issue of the journal *Nature*



Climate change: processes, characteristics and threats. (2005). In UNEP/GRID-Arendal Maps and Graphics Library. Retrieved 02:16, September 11, 2006 from [http://maps.grida.no/go/graphic/climate\\_change\\_processes\\_characteristics\\_and\\_threats](http://maps.grida.no/go/graphic/climate_change_processes_characteristics_and_threats)

## Ecosystem Destruction

- **Ecosystem shifts and species die-offs** Disruption from instability triggered by climate change, such as fire, drought, pest infestation, invasion of species and storms means that 35% of the world's existing land-based habitats could be destroyed by the end of this century and up to one third of the Earth's forests could experience changes in plant types. In many instances, species will need to move somewhere else to survive – putting stress on remaining safe habitats. Wetlands will decline. Mass extinctions of both plant and animal species are a certainty, with rare species and those living in unique, isolated habitats the first to vanish.
- **Coral reef destruction** In 2002 a panel of 17 of the world's leading coral reef researchers<sup>9</sup> warned that by 2030 'catastrophic damage will have been done to the world's coral reefs and by 2050 even the most protected of reefs will be showing massive signs of

damage.'

- **Crop failure** Unstable water supplies (either too much or too little), plus larger increases in temperature, will cause a decrease in agricultural productivity, with crop yields decreasing globally. This could lead to major costs, with excessive prices and famine a real possibility.

## Social and Political impacts

- **Migration and refugees** As conditions get worse in many places, people will find themselves displaced – as 'environmental refugees'. Massive migrations, particularly from the dry or semi-arid areas where more than a third of the world's people live, will turn fragile states into failed states and increase the pressures on regional neighbours.
- **Resource and boundary disputes** Pressure on food, water and other resources in 'safer' countries

will grow intense. Potential security issues abound as harassed states attempt to hold on to whatever resources they can in a disintegrating world.

- **Imbalance between rich and poor** As always, those with the least power and influence will find themselves the most severely affected by the consequences of climate change. However, all will feel the impacts – with unsettled world markets and competing interests fighting it out for a tentative place at the top of the pile.

Sources: WWF "Global Warming and Terrestrial Biodiversity Decline"; Tim Flannery, "The Weather Makers"; "The Science of Climate Change" The Royal Society of New Zealand; "Consequences of Global Warming" Natural Resources Defense Council; "Climate Variability and Change" National Institute of Water and Atmospheric Research, New Zealand; "Climate Change and Global Security" John Ashton and Tom Burke.

<sup>8</sup> led by Tim Barnett at the Scripps Institution of Oceanography in La Jolla (San Diego County)

<sup>9</sup> in an article in 'Science' magazine

... Why are they trying to scare us? ... we depend on those [fossil] fuels to grow our food, move our children, light up our lives.

And as for carbon dioxide, it isn't smog or smoke, it's what we breathe out and plants breathe in. Carbon dioxide. They call it pollution. We call it life...

(Competitive Enterprise Institute advertisement)

'Global warming' creates an illusion of a comfortable, warm future that is deeply appealing, says Tim Flannery in his book *The Weather Makers*. He reminds us that we are an essentially tropical species that has spread into all corners of the globe, and cold has long been our greatest enemy. It is little wonder, then, that many of us are burying our heads in the sand rather than confront the lifestyle changes necessary to stem the rising tide of climate catastrophe.

## Fossil-fuel-fed denial

While scientists have been voicing concern since the 1970's, it is 'almost impossible to overestimate the role [oil and coal] industries have played in the last two decades in preventing the world from taking serious action to combat climate change.'<sup>10</sup>

In what emerged as a propaganda war, Fred Palmer (now vice-president at Peabody Energy, the world's largest coal producer) announced that the earth's atmosphere 'is deficient in carbon dioxide' and that producing more would bring about an age of eternal summers. Incredibly, he even offered that Western Fuels (who he worked for at the time) lead the charge by creating a world with atmospheric CO<sup>2</sup> of around 1000 parts per million<sup>11</sup>. Palmer's outrageous claims were used as the basis for a propaganda video *The Greening of Planet Earth* (which, incidentally cost quarter of a million to make) – proposing that the world should be 'fertilised' with CO<sup>2</sup> to boost crop yields to bring an end to world's hunger!

While it's easy to look back on such campaigns and laugh, this type of industry-backed propaganda has had considerable influence over government decisions, and such absurd lobbying continues to this day. In an attempt to offset the media frenzy surrounding Al Gore's documentary *An Inconvenient Truth*, The Competitive Enterprise Institute (CEI) launched a television campaign declaring 'Carbon dioxide. They call it pollution. We call it life'.

Tim Flannery suggests that an industry lobby group founded in 1989 by 50 oil, gas, coal, auto and chemical corporations – the Global Climate Coalition – did perhaps the greatest damage. Since its launch, they have given over \$60 million in political donations and spent millions more on propaganda. They're not even ashamed of this – with their stated purpose being to 'cast doubt on the theory of global warming.'<sup>12</sup> It is credited with the 1992 Rio Earth Summit's failure to adopt strong measures to protect all humans from the danger of climate change.

Fortunately, the vested (secret) interests of the fossil fuel producers are starting to be 'outed' in the media more frequently. The New York Times, in May 2003, broke a story that said ..."the company [Exxon Mobil],

the world's largest oil and gas concern, has increased donations to Washington-based policy groups that, like Exxon itself, question the human role in global warming... Exxon now gives more than \$1 million a year to... organisations that include the Competitive Enterprise Institute [who produced the television advertisements described above]..." And a website dedicated to Exxon's under-the-table campaigns ([www.exxposeexxon.com](http://www.exxposeexxon.com)) lists an eye-boggling array of dirty tactics and financial skullduggery.

## Who pays the piper?

The close relationship between fossil fuel producers and US politics is seen as a major sticking point when it comes to making progress on passing measures that would benefit the environment.

### Industry contributions to US political parties (in US \$ millions)

	1998	1997	Democrats	Republicans
Mobil Oil	\$6.16	\$5.24	16%	84%
Exxon	\$5.62	\$5.21	12%	88%
Texaco	\$4.23	\$5.63	24%	76%
Shell Oil	\$3.72	\$2.94	26%	74%

Source: 'Industry fossils deny problem' Alternative Journal, Spring 2000

<sup>10</sup> p240 *The Weather Makers* Tim Flannery

<sup>11</sup> as above

<sup>12</sup> Beder, S. *The decline of the Global Coalition*, Engineers Australia, Nov 2000, p41

## Global power games

While it is becoming more and more obvious that the poorer nations in tropical and semi-tropical regions will suffer the most significant harmful impacts, the input from these countries is far less likely to be listened to. These are often also the countries already in a stranglehold of debt and trade restrictions imposed on them by the World Bank.

If we are to believe the World Bank's stated purpose is to lessen poverty and promote sustainable development, then why is it spending 25 times more money on fossil fuel related projects than on renewable ones? For instance, World Bank-supported projects in Nigeria and Chad have encouraged the export of fuel to wealthy countries. And, when a country holds onto electricity, it is usually allocated to power-hungry industries such as aluminum production (which often move in from other countries once cheap power becomes available). With coal emitting the largest amounts of CO<sub>2</sub> per unit of power produced, the World Bank spent \$1.35 billion building coal-fired power plants in China<sup>13</sup>. Where's the sustainable development in *that*?

The imbalance between those countries making the mess, and those who will be suffering the long-term consequences, is another political hot cake. Historically, industrialised countries have contributed up to 90% of the trace gases that are tipping the world's weather system out of balance. For instance, today the US (with only 4% of world population) emits nearly a quarter of all problematic trace gases... with Australia not only now the highest per capita emitter – 25% higher than the US when all sources are accounted for – but also it's growth in emissions within the last decade has been faster than any other OECD country.<sup>14</sup>

**“Thermometers registering a few degrees more in the United States suddenly turned climate change into a ‘global’ issue. The entire scientific community was immediately mobilized... Contrast this with three years earlier when thousands of famine victims in Ethiopia and Sudan weren’t enough to move governments in the North to respond to desertification and drought as global environmental emergencies. True, they sent food aid, but the climate problem remained a local difficulty. These deaths, after all, took place in Africa – they are still ‘out there.’”**

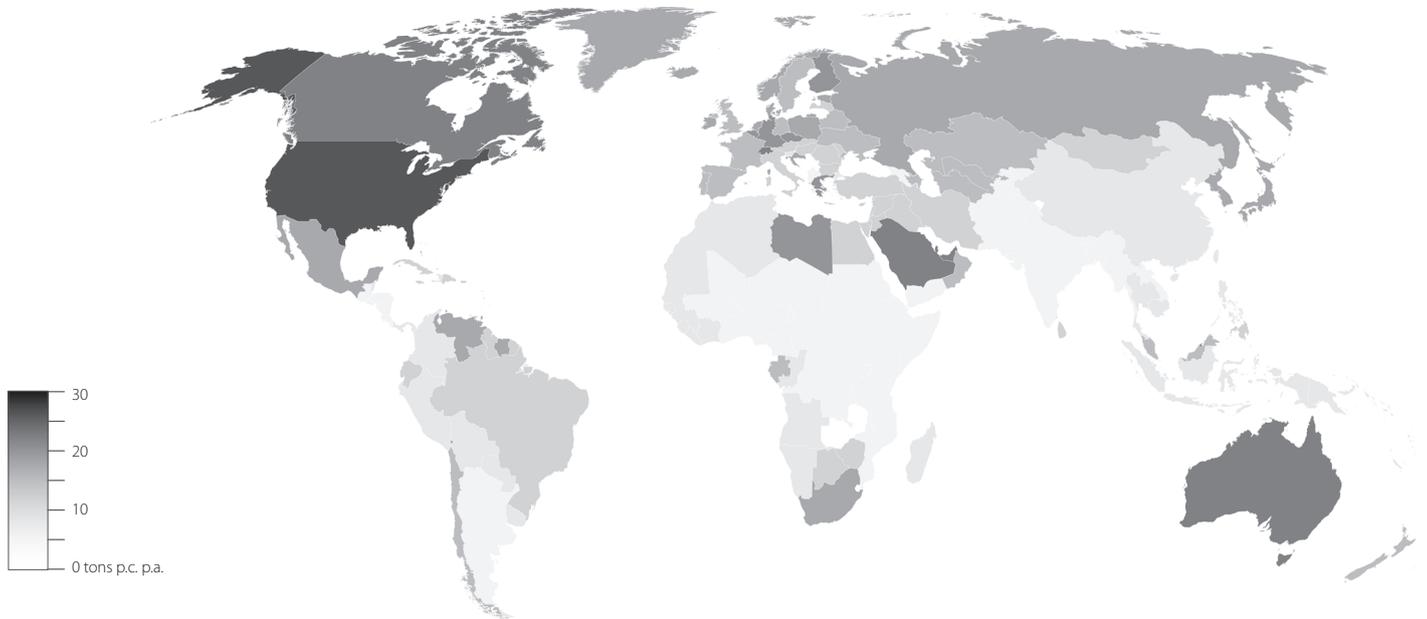
Vandana Shiva, *‘Cry foul, cry freedom’*,  
New Internationalist, April 1990.

<sup>13</sup> From: *Smokescreen* Kate Hampton *New Internationalist*, Dec. 1999; *The World Bank: Funding Climate Chaos* Daphne Wysham, *The Ecologist* March/April 1999.

<sup>14</sup> Hamilton, C. 2001. *‘Running from the storm: The Development of Climate Policy in Australia.’*

## ❖ The Biggest Users

### CO<sub>2</sub> per capita per country



Source: [http://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_carbon\\_dioxide\\_emissions\\_per\\_capita](http://en.wikipedia.org/wiki/List_of_countries_by_carbon_dioxide_emissions_per_capita)



### Who stands to gain from climate change denial?

**Do you think it is fair that the poorest people in the world must pay for the excesses of the rich?**

### Even nice guys get it wrong occasionally...

On 16th April, 2005, New Scientist published a letter (in Issue 2495) from the famous woolly-bearded British botanist Dr. David Bellamy. In it, he claimed that many of the world's glaciers *"are not shrinking but in fact growing... 555 of all the 625 glaciers under observation by the World Glacier monitoring Service in Zurich, Switzerland, have been growing since 1980."*

The fact that such a well-known environmentalist had publicly questioned the validity of climate change predictions caused great concern and confusion among the science and activist communities.

*"Could it be that one of the main lines of evidence of the impacts of global warming – the retreat of the world's glaciers – was wrong?"*

Award-winning writer and activist George Monbiot decided to find out, so worried was he by the claims of Dr. Bellamy (president of the Conservation Foundation, the Wildlife Trusts, Plantlife International and the British Naturalists' Association).

Monbiot telephoned the World Glacier Monitoring Service and read them out Dr. Bellamy's letter. They declared the information *"bullshit"*, and stated that *"the latest studies show unequivocally that most of the world's glaciers are retreating."*

When Monbiot asked Dr. Bellamy for the source of his data, he responded by

citing a website called [www.iceagenow.com](http://www.iceagenow.com) – the product of a 'former architect' who is neither climatologist, vulcanologist nor oceanographer. Dr. Bellamy's other source turned out to be published by a Lyndon Larouche, an American who was jailed for conspiracy, mail fraud and tax code violations! This is the man who also claimed that the British royal family is running an international drugs syndicate!

While Dr. Bellamy and George Monbiot continue in a debate over semantics, it is clear that Dr. Bellamy has run more successful campaigns! As George Monbiot says *"It is hard to convey just how selective you have to be to dismiss the evidence of climate change...you must ignore an entire canon of science, the statements of the world's most eminent scientific institutions, and thousands of papers published in the foremost scientific journals."*

To find out more about this go to: [www.monbiot.com](http://www.monbiot.com)

**George Monbiot** has held visiting fellowships or professorships at the universities of Oxford (environmental policy), Bristol (philosophy), Keele (politics) and East London (environmental science). He is currently visiting professor of planning at Oxford Brookes University. In 1995 Nelson Mandela presented him with a United Nations Global 500 Award for outstanding environmental achievement.

It's important to understand that 'Peak Oil' is not directly connected to climate change... while the emissions created by our fossil fuel culture are at the foundation of the climate change crisis, 'Peak Oil' is another issue altogether. There's no denying, however, that it's a big issue – one that all of us should be preparing for and which, if not properly handled, will only make climate change and environmental problems worse.

## What is peak oil?

As soon as the first oil well was tapped, oil started running out. *Peak oil* refers to the time when oil extraction 'peaks' worldwide, and our ability to source and extract oil is overtaken by our greedy demand for it. As a result, the price will skyrocket, oil-dependent economies will crumble, more products than you ever thought possible will disappear, and resource wars will ignite throughout the world.

## When will it occur?

According to the Association for the Study of Peak Oil and Gas (ASPO), their latest model suggests that 'regular' oil peaked in 2004. If heavy oil, deepwater, polar and natural gas liquids are considered, the oil peak is projected for around 2010. Combined oil and gas are expected to also peak around 2010.

## Why does it matter?

The issue is not so much one of 'running out', but more of not having enough to keep economies running. Peak oil represents a change in conditions that have driven economic growth since the industrial revolution – and during a time in which our population has risen six-fold. Any oil left in the ground will take more energy to extract than can be provided as fuel. This will be the end of the fossil fuel age in human history.

## What will it mean?

Higher petrol prices are just a start. Oil is used for:

- **Transport of goods** – food and consumer goods from all over the globe will rise in price as transporting them becomes more expensive or impossible.
- **Transport of people** – cars will be less affordable – living in the suburbs and commuting will come

"Civilisation as we know it is coming to an end soon. This is not the wacky proclamation of a doomsday cult, apocalypse bible prophecy sect, or conspiracy theory society. Rather, it is the scientific conclusion of the best paid, most widely respected geologists, physicists, and investment bankers in the world. These are rational, professional, conservative individuals who are absolutely terrified by the phenomenon known as "Peak Oil."

Matt Savinar

under threat. Air travel and tourism will also be affected.

- **The economy** – our economies are closely linked to oil prices – so watch out for recessions, inflation, rising consumer debt and increased unemployment.
- **Products and materials** – plastics, medicines, packaging, synthetic fabric, road surfaces, cosmetics, detergents - plus much much more - is produced from oil.
- **The environment** – an oil shortage could lead to looser (or flouted) environmental controls and plundering of resources, including forests (which, in turn, impacts on climate change.)
- **Security** – demand for oil is still rising. Nations with oil reserves may become more 'assertive', with border disputes likely to increase and intensify. The military is a huge consumer of oil.

## Can't technology just fix things?

Technology provides ways to use energy; it cannot create energy. However, it's not all doom and gloom! Technology can be used to find new and environmentally sound ways of fueling our global needs.

## What are the other fossil fuel alternatives to oil?

- There are no alternatives to oil that provide a comparable amount of fuel for the fuel it takes to produce them – and to transport that fuel to the user.
- **Natural gas** is also reaching its peak; is difficult to import and store and requires high-tech support and maintenance.
- **Coal** requires fuel oil for its mining, distribution and waste management; is unsuitable for powering cars; too dirty for domestic use; and coal use will lead

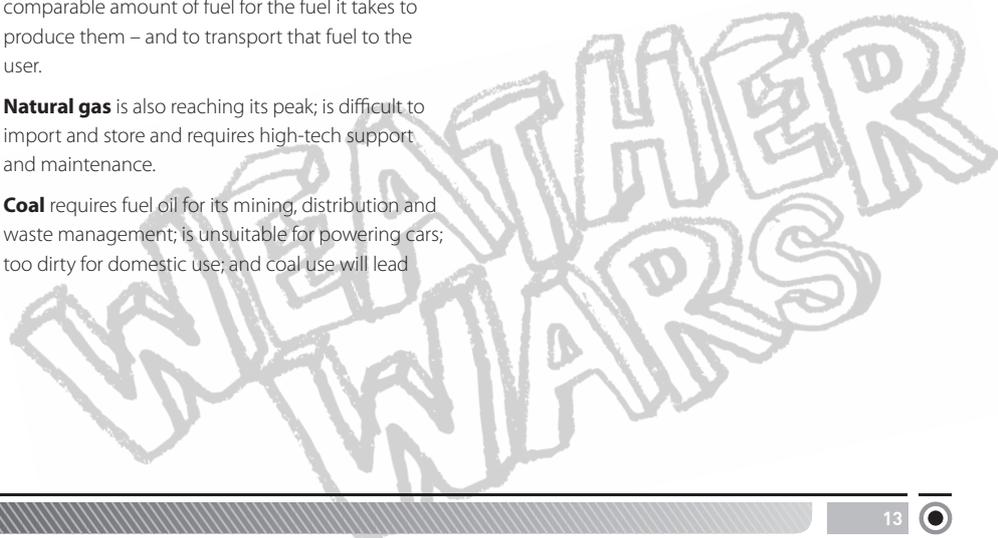
to greater emissions which, in turn, increase the impacts of climate change.

## What about nuclear power and hydrogen?

- **Nuclear power** – there are only about 40 years of disclosed uranium reserves; mining uranium is oil-fuel intensive (as is the building of reactors); storage of nuclear waste for thousands of years is an unsolvable problem. The risks are *huge!*
- **Hydrogen** is *not* a source of energy; it's a *carrier* of energy. There are no extractable hydrogen reserves; it takes a lot of energy to produce (mainly from fossil fuels) and is almost impossible to store. Hydrogen fuel cells – often touted as the solution to the petrol crisis – contain oil-based materials! For the 'up-side' of the hydrogen discussion, see the next page.

## What is going to happen when fossil fuels run out?

To find out more, go to <http://www.energybulletin.net/> – a clearinghouse for current information regarding the peak in global energy supply, or <http://www.natsoc.org.au/> – The Nature and Society Forum; <http://www.peakoil.net/> – The Association for the Study of Peak Oil and Gas; or try googling 'peak oil'.



## Alternative Fuel Possibilities

**Ethanol** The most popular liquid biofuel, it is already being mixed with petroleum in vehicle fuels in Europe. Can be refined from maize, palm oil, soy and sugar cane – which is widely used in Brazil. Crops can also make biodiesel. Together, ethanol and biodiesel supply about 2% of world vehicle fuel. This has large market potential, but is limited by land availability for growing crops – rainforests are sometimes cleared for soy and palm oil plantations. Plus, the amount of energy required to produce ethanol still requires further examination.

**Geothermal** Hot water trapped in the Earth's crust in volcanic regions is tapped for heating and electricity generation in Aotearoa New Zealand, Iceland, East Africa, the Philippines and elsewhere. This important, but localised, source of power could be transformed by new technology – to tap the heat of the crust where there is no water. A French project is injecting cold water into hot rocks 3 kilometres down and bringing steam to the surface.

**Hydroelectric** Large dams on rivers hold back water, to provide a regular flow through turbines. The technology works best in hilly terrain, where deep canyons can be dammed. This generates up to a fifth of the world's electricity and a tenth of total world energy. But further potential is limited. Most good sites are already taken. Reservoirs flood fertile land, have created millions of refugees, and ultimately silt up. Downstream, changed river flows damage fisheries and ecosystems and cause additional erosion. Small hydroelectric (micro-hydro) plants without artificial reservoirs are increasingly popular in mountain regions like the Himalayas, where they bring cheap electricity to remote villages.

**Hydrogen** Manufactured by splitting water into oxygen and hydrogen, their later recombination releases energy. Proponents of a future "hydrogen economy" say hydrogen could be manufactured using electricity generated from renewable energy sources like wind and the Sun, before being stored in fuel cells and used to power vehicles, boilers or power stations. Technology is still at an early stage of development.

**Nuclear fusion** Uses the same principle as energy release from the Sun. However, half a century of research has brought the world only a little closer to what was once heralded as the "ultimate" power source.

**Solar – Photovoltaics** A form of solar energy in which photovoltaic cells convert the Sun's energy into electricity. First developed for space satellites, but growing in earth-based popularity as the technologies



Source: <http://www.interfacesustainability.com/>

prices fall. Large-scale production requires a lot of land and plenty of sunshine. There is great potential in electrifying villages in the developing world and for urban "micro-generation" using cheap flexible solar panels integrated into walls and roofs.

**Solar – Thermal** Thermal solar energy was developed in the 1970s for heating water in domestic rooftop tanks in Mediterranean countries like Israel. There has been a recent revival of research into large-scale power generation using arrays of mirrors to concentrate solar rays onto advanced ceramic heat absorbers.

**Waves** This energy source potentially uses floating pontoon structures to capture the energy in waves. There are many prototypes, but no technology has so far solved the technical problems of harnessing the unpredictable and sometimes destructive force of waves, and bringing the energy ashore. Plans have recently been mooted to use the wave power of Cook Strait (between Aotearoa New Zealand's North and South Islands) for new power generation, so watch this space!

**Wind** The kinetic (moving) energy of wind is harnessed

to power wind turbines or windmills. This is currently the cheapest widely available source of renewable energy. Worldwide capacity is growing by 30% a year, but still represents less than 1% of total energy use. The unpredictability of winds, and subsequent problems with regularity of supply, places limits on its percentage contribution to an overall system, but energy storage systems such as hydrogen could solve that. There has been growing public opposition due to negative impacts on scenery – the answer might be offshore wind farms, especially since sea breezes are 40% faster than those on land.

Source: Fred Pearce, New Scientist 26 May 2006 [NewScientist.com](http://www.newscientist.com)



**The Kyoto Protocol** is the world's only international agreement with binding targets to reduce harmful trace gas emissions. As such, it is the key tool that governments of the world have to address climate change. Specifically, the Protocol requires a minimal 5% reduction in emissions by developed countries worldwide, relative to 1990 levels, by 2008 – 2012.

To meet this worldwide target, each country is obligated to its individual target (the EU 8%, Japan 6% etc.) These individual targets are derived from past trace gas emissions. If any member of the Kyoto Protocol fails to get their emissions down to the level they have promised by 2012, then they have to take responsibility for not achieving their goal. That means they either have to pay for all extra harmful trace gases they have produced (an international market will be set up for this purpose) or they trade their emissions off against carbon sinks (e.g. German-financed energy efficiency projects in Russia or Norwegian-financed renewable energy projects in Hungary).

### **So far 162 countries have signed up to or agreed to comply with the Kyoto Protocol.**

The USA hasn't signed up to the treaty, even though they are the world's biggest producer of harmful trace gases. Australia, Liechtenstein, Croatia and Monaco also haven't signed up the Kyoto Protocol.<sup>15</sup>

According to some<sup>16</sup>, Kyoto has only really survived at all because George W Bush has failed to honour his early promise to come up with a reasonable alternative. Opponents of the Protocol have exaggerated the implementation costs, not admitting that much of the price tag will take the form of investment (rather than direct payouts), as actively reducing emissions largely depends on finding long-term ways of *improving energy efficiency* and these savings will outweigh the initial costs required after a few short years.

The US administration's problem with the Protocol appears to be less about the Protocol itself, and more about the need to begin *any* reduction in emissions before developing countries do – while developing countries are just as adamant that the rich world must first show leadership and willingness to tackle the problem. Many believe this debate is nothing but a red-herring – allowing the largest emitters to continue while the arguments swirl around them. What the US administration (and others of like mind) choose to overlook, when they raise this argument, is the fact that developing countries have contributed only a fraction of the increases in problematic trace gases to date, and

**“One could be forgiven for thinking that, with such a stunning all-round success [as the Montreal Protocol] to point at, the nations of Earth would have jumped at a chance to address climate change using a similar mechanism... to limit emissions... So what happened?”**

Tim Flannery

that their emissions per capita remain far below those of the West.

**The Kyoto Protocol may not be perfect**, but the governments of the world have created the tools necessary to start tackling climate change... and we need look no further than the world's concerted action against damage to the ozone layer by human-made CFC's (chlorofluoro-carbons) to see how positive such Protocol's can be.

### **The Montreal Protocol**

Like today's Kyoto Protocol, the 1985 Vienna Convention for the Protection of the Ozone Layer was described as a *'toothless expression of hopes'*. But it eventually gave birth to the Montreal Protocol, in which the world's governments pledged to phase out CFC's, in order to stop further ozone depletion. As with the Kyoto Protocol, not all countries were initially bound to the Montreal Protocol – with China continuing to produce CFC's until 2010, when it must cease. Yet in 2004 the ozone hole over the Antarctic reduced by 20% – and scientists are optimistic that in fifty years time the ozone layer will have returned to its former strength.

**A little good news...** while the U.S. administration continues to hold back on signing up to Kyoto, many individual states in the U.S. (such as California) have taken the initiative and set emission targets for their states, and the North-Eastern states proposing an emissions trading scheme. Similarly, many Australian states have developed strict emission targets and are also developing a trading scheme despite federal resistance.

### **Aotearoa New Zealand's Kyoto Targets...**

To meet our obligations under the Protocol, Aotearoa New Zealand will need to reduce its warmer trace gas emissions to 1990 levels, on average, over the 2008-2012 period; or take responsibility for any excess emissions above 1990 levels by acquiring extra emission units or sink credits. Our emissions are estimated to be around 14-20% above 1990 levels during 2008-2012.

(Source: <http://www.maf.govt.nz>)

## **What is a forest (or carbon) sink?**

Growing forests are termed as *forest sinks* because of their ability to absorb carbon dioxide. Trees convert carbon dioxide from the atmosphere into carbon stored in the form of wood and soil organic matter. The annual planting rate of forest sinks decreased during the mid-1990s and has not returned to 1990 levels. The NZ Government expects that forests planted after 1990 will absorb around 70 million tonnes of carbon dioxide in the period 2008 to 2012.

<sup>15</sup> From: Climate Change Fact Sheet – Global Education Centre

<sup>16</sup> Michael Grubb, *The Kyoto Protocol: time for action, not hot air* [www.openDemocracy.net](http://www.openDemocracy.net)

### **Climate change is nothing new – it's always been happening – it's just natural.**

In the Earth's history there have been other periods where average global temperatures have increased by as much as 5.5 degrees Celsius, when several 'mass extinctions' caused between 50 – 90% of species on Earth to disappear forever. The most recent was 55 million years ago, between the Palaeocene and Eocene periods. This is the first time, however, that *human activity* has caused this rising of temperature – with the eventual effects on climate and life comparable to those that caused mass extinctions. Life will survive, but it will do so on a transformed planet. *We have the power to reduce its impact... but only if we act quickly and are totally committed to changing our fossil-fuel-reliant ways.*

### **The Kyoto Protocol is a big waste of time.**

*'It is of paramount importance to understand that the Kyoto Protocol is the only international treaty in existence created to combat climate change. For those who urge abandonment or who criticise Kyoto there are two questions: what do you propose to replace Kyoto with, and how do you propose to secure international agreement for your alternative?'* (Tim Flannery, *The Weather Makers*). In other words, while it's not perfect, it's a good place to start... and a chance to do even better as more countries thoroughly commit to the Protocol and come on board.

### **Global Warming is rubbish – it's getting colder.**

Trace gases trapped in the Earth's thermal blanket are definitely making the world warmer. But higher temperatures do not necessarily mean nicer weather for us. As the average global temperature rises, so too will the number and intensity of freak weather events such as flash floods, storms, mudslides and snowstorms – leading some people to comment that it seems 'colder'. So, for many, this is true – as different weather patterns emerge... but they all still result from a rise in global temperature overall.

### **Wind power is noisy and takes up heaps of land.**

Modern turbines are actually very quiet. Well-designed, well-sited turbines can be acceptable for people living just a few hundred metres away. To protect nearby residents from any undue disturbance, proposals to install wind turbines are required to meet strict noise standards. Only 3% of the land used in a wind farm is actually taken up by turbines and access roads. That leaves the remaining 97% of the land free for farming or grazing, as usual. Thus wind farms result in rural land being used more productively.

A report released by the Energy Efficiency and

Conservation Authority in 2001 showed that Aotearoa New Zealand had enough wind energy potential to produce 3 times our current energy needs with wind, using only 1% of our land.

### **Coal is clean these days, isn't it?**

Yeah right! Coal is the dirtiest of all fossil fuels and one of the most polluting sources of energy. When burned, it emits 72% more carbon dioxide (the main cause of climate change) than gas does. The coal industry misleadingly claims that it can now burn coal "cleanly". In fact, so-called "clean coal" methods just shift pollutants from one waste stream to another. Furthermore, ways to deal with climate-changing carbon dioxide pollution won't be viable for 50 years, according to leading world experts. Coal mining also damages forests and impacts river ecosystems through acid mine drainage and heavy metal contamination.

### **There's now a way to remove the carbon dioxide emissions from coal plants.**

Methods to capture and store carbon dioxide emissions (the main cause of climate change) have been under development for several years but are many decades away and will simply not be ready in time to provide us with the huge near term emission cuts that we need in order to avoid catastrophic climate change.

### **Hydro is bad for the environment.**

Large-scale hydro developments can be very damaging to the environment, causing severe impacts to river systems and flooding forests and other ecosystems.

However, there is potential for small to medium scale developments, provided they have a minimal impact and are well managed with tight environmental controls. These proposals have to be considered on a case-by-case basis.



Coal-powered Abbott Power Plant, Champaign, Illinois.

### **Unhappy Valley**

Aotearoa New Zealand's state owned Solid Energy is creating an opencast coal mine at Happy Valley on the South Island's West Coast, about 25 km NE of Westport.

Campaigners claim that the 500,000 tonnes of coal extracted each year for 10 years (mostly for export) will create CO<sub>2</sub> emissions equivalent to the country's entire vehicle fleet across a two year period! How does this fit with our stated commitment to reduce the impact of climate change?

Also, in addition to the significant environmental destruction to a unique landscape, the mining threatens our Great Spotted Kiwi and the rare Powlliphanta "Patrickensis" snail.

## Take Action

According to the Aotearoa New Zealand government website "4 Million careful owners"<sup>17</sup> we all need to think about conserving, and more efficiently using, energy from fuels. Making your home more efficient will also save you money on your power bill.

### In your home...

Insulate your hot water cylinder with a wrap and insulate the pipes near the cylinder.

- Use a triple-A rated shower head.
- Use the yellow and red Energy Rating label to buy white-ware such as fridges, dishwashers and dryers. The additional cost of an 'energy efficient' model is easily repaid in savings.
- Lighting consumes around 10% of the power in your home. Replace the light bulbs in your most frequently used lights with energy-efficient compact fluorescents (available from supermarkets or hardware stores).
- Turn off lights, appliances & computers when you're not using them.
- Make sure you switch off equipment on 'stand-by' (with display lights and clocks visible) such as televisions, VCRs, DVDs, stereos & microwaves at the wall.
- Wash clothes in cold water (try to wash full loads) & hang clothes out to dry instead of using the dryer.
- Close windows, doors and curtains to keep in the heat.
- Use the dishwasher only when you have a full load.
- For more ideas see the EnergyWise website at <http://www.energywise.org.nz>

### Transport...

With transport accounting for over 43% of all Aotearoa New Zealand consumer fuel use (and with it emitting 46% of the country's carbon dioxide emissions), how about trying:

- Walk, cycle or use public transport instead of your car when possible.
- Get your car serviced regularly and keep tyres inflated.
- If your car has a roof rack, remove it when you don't need it – the air drag from a roof rack means you can use 5% more fuel.
- Air-conditioning can add 10% to your fuel bill – try using the air vents instead.
- Go easy on the pedal to reduce fuel use – heavy braking and accelerating uses a lot of fuel.
- Choose a fuel-efficient, low-polluting option when buying a car.

- Organise or join a walking school bus in your area (phone 09 374 3806 or go to [www.eeca.govt.nz](http://www.eeca.govt.nz) and look under the 'Transport' section).

### Waste...

Nearly half (45%) of the average rubbish bag could be composted. That's a huge waste of space in our landfills (in landfills, garden waste and kitchen scraps break down into methane, a potent greenhouse gas which contributes to climate change).

- Compost organic material as much as you can (this will reduce methane emissions from landfills and your garden will love you for it!)
- Recycle glass, plastic items and tins.
- Buy products with less packaging.
- Take a recyclable shopping bag to the supermarket instead of using plastic bags each time.

### Be politically active...

Political action can take many forms. It can mean supporting a public official who supports renewable energy or educating people about the problem of global warming. Consider writing a letter to the editor of your local newspaper about energy and global warming, or form a group in your community to discuss the problem and call for action on a local level.

### Become a Cyberactivist...

The Internet has many sites that link to current actions you can take to help stop global warming and support renewable energy... get searching!



Source: Friends of The Earth, Europe



Calculate your own carbon footprint by taking an online test at either:

<http://www.carbonfootprint.com/>

<http://www.carboncalculator.co.uk/calculator.php>

<http://www.safeclimate.net/calculator/>

<http://www.climatecrisis.net/takeaction/carboncalculator/>

<sup>17</sup> <http://www.4million.org.nz/climatechange/takingaction/home.php>



"It is getting to know and trust one's neighbour that is the real alternative to petroleum; i.e. community, rather than the narrow approach of materials-substitution that is the hallmark of the technologists and technocrats... Life and culture change are not just about learning and taking action; they are also very much about living joyfully, proudly and convivially."

Jan Lundberg, Culture Change Letter #133 – June 20, 2006 <http://culturechange.org>

With all the facts mounting up about the need for immediate and wide-ranging action to ward off the worst effects of climate change, many campaigners are finding their pleas for change falling on deaf ears. The issue is just too big, and too scary, for the average punter to want to get their heads around.

A number of forums have been exploring just this – the need to reassess how climate change policy is promoted, and to find more effective ways to push it to the top of political and personal agendas worldwide. The following ideas reflect some of the latest thinking on how to drag our collective heads out of the sand:

- Don't debate the science... the time has come to have confidence in the scientific consensus around climate change... (Jon Miller 2005)
- In order to get ordinary people taking action to help reduce climate change impacts, we need to use our weaknesses (greed and self-interest) to create leverage for a cleaner environment. With this in mind, carbon trading is a crafty first move. (Ian

McEwan, 2005)

- There is a need to promote action on climate change as about *values* such as responsibility, stewardship, competence, vision and ingenuity... action to prevent climate change should be seen as being about new thinking, new technologies, planning ahead, smartness, forward thinking, balances alternatives, efficiency, prudence and caring... (Simon Retallack 2006)
- It's becoming clear that 'bogeyman campaigning' [won't] work in this issue. We have to make it personal. (George Marshall 2005)
- Move from 'climate change is bad news for polar bears' to 'climate change may affect your house prices.' (Jon Miller 2005)
- The language used to discuss climate change action needs to be one of empowerment and equity. We need to demonstrate how global threats of climate change actually impacts

on individual lives. (Sophie Harding – Tearfund- 2005)

- We have all contributed to the problem, and we all have a vital role to play in becoming part of the solution... it is an issue of equity. The poor have not contributed to climate change, yet it is they who will suffer most from its adverse effects. (Sophie Harding –Tearfund – 2005)
- At the very least, high profile groups need a coordinated approach... with solutions that will have highest impact – such as building pressure on the United States to get behind Kyoto. (Jon Miller 2005)
- Discussion over climate change offers us a chance to engage in more democratic global governance, and a chance to frame this debate in terms of sustainable development ideas. (Rubens Born & Mark Lutes 2005)

"Peak oil, climate change, and resource wars are not the problems, they are the symptoms. The real problem is our high-energy, over-consumptive way of life. The real tragedy is that while promising us happiness, fulfillment, and independence, this way of life leaves us stressed, empty, isolated, and addicted.

The solution, for both activists and the world, is to live in a more sustainable, cooperative, and compassionate way with our neighbors in our communities. We can replace fossil fuels with relationships in our self-reliant communities, and discover true freedom.

Not only do we become a model for others and contribute to the birth of a new culture, we get to have more fun and live a more meaningful life. We can have our garden and eat it too!"

Megan Quinn *'The Renewed Activist'*.

Megan Quinn is the outreach director for The Community Solution, ([www.communitysolution.org](http://www.communitysolution.org)).

## Useful Resources and Websites

These resources and more are held in our GEC library (part of the Development Resource Centre Library.)

Membership is free. To register, or search the catalogue, visit the library section of our website:  
[www.globaled.org.nz/library.html](http://www.globaled.org.nz/library.html)

Please contact us if you would like to receive a comprehensive listing of our youth worker and other resources.

### DVDs:

#### **“Woodn’t you know : Earth report VII: Hands on”**

Television Trust for the Environment (TVE), London. Increasing focus on global warming, endangered biodiversity and corporate social responsibility in the world’s media headlines is prompting behaviour change. Making the connections between these issues, three organisations have joined forces to undertake a project to reforest land in Ecuador and to offset carbon emissions from new power plants built in the state of Oregon, USA.

**“Pay Now, Pay Later: Earth Report VI”**, Ken Pugh, Television Trust for the Environment (TVE), London. In 1992, the Rio Earth Summit promised to help redress wealth imbalances by bringing people out of poverty through the sustainable use of the environment’s natural resources. This Earth Report travels to Uganda, the Dominican Republic, Costa Rica, Spain and Jordan to take a look at five projects that embody those aims. Talking to leading commentators such as Ian Johnson, Vice President of the World Bank, and Professor Jeffrey Sachs of Harvard University, Earth Report looks at whether sustainable development can bring about real change and what lessons can be learnt.

**“An Inconvenient Truth”** a film by Davis Guggenheim about Al Gore’s climate change ‘slide show’. We are hoping to have this in our library soon!

### Publications:

**“The Weather Makers – The History & Future Impact Of Climate Change”** by Tim Flannery, The Text Publishing Company, Melbourne, Australia. 2005. As Bill Bryson says on the front cover *‘It’s hard to imagine a better or more important book.’* Recommended.

**“The No-Nonsense Guide to Climate Change”** by Dinyar Godrej, Verson and New Internationalist Pubs. An analysis of the political context and potential solutions to the climate change crisis. Recommended.

**“Planet in peril: an atlas of current threats to people and the environment”** Alain Gresh, (ed) Rekacewicz, Philippe (ed) Vidal, Dominique (ed) UNEP/

GRID-Aredal, 2006. Written by an international team of specialists, this Atlas brings together a wealth of information from the most up-to-date sources on such key issues as climate change, access to water, exploitation of ocean resources, nuclear energy and waste, renewable energy, weapons of mass destruction, causes of industrial accidents, waste, export, hunger, genetically modified organisms, urban development, access to health care and ecological change in China.

**“Unspeak”** Steven Poole, Little, Brown, 2006. “Unspeak” is the use of language in order to attempt to persuade us to do something. From ‘anti-social behaviour orders’ to ‘climate change’, ‘ethnic cleansing’ and ‘the war on terror’, this book about language slices through a world of euphemism and propaganda.

### Websites:

<http://www.natsoc.org.au/>  
The Nature and Society Forum is a catalyst for social change to bring about a biosensitive society which satisfies the needs of humankind and the ecosystems of which we are a part.

<http://www.peakoil.net/>  
Association for the Study of Peak Oil and Gas

<http://www.openDemocracy.net> openDemocracy offers stimulating critical analysis, promoting dialogue and debate on issues of global importance and linking citizens from around the world.

<http://www.foeeurope.org/climate>  
Friends of the Earth Europe campaigns for sustainable and just societies and for the protection of the environment and is part of the world’s largest grassroots environmental network, Friends of the Earth International

<http://www.ozean-klima.de/>

Stefan Rahmstorf (Professor of Physics of the Oceans at Potsdam University) and his team study the role of the oceans in climate change, in the past (e.g., during the last Ice Age), in the present and for a further global warming.

<http://www.climatehotmap.org/index.html>  
This map illustrates the local consequences of global warming, with background materials on the map for scientists and map curriculum materials for high school teachers.

<http://www.sage.wisc.edu/>  
The Centre for Sustainability and the Global Environment (SAGE) examines the linkages between natural resources, human health and security, and changes in the global environment.

<http://www.bonusjoules.co.nz>  
A locally produced site that is *“devoted to revealing the nature of energy so humanity may thrive and our daily lives be filled with wonderment and awe.”*

<http://www.niwascience.co.nz/ncc>  
The National Climate Centre (NCC) ‘provides regular public information on current climate conditions across NZ, plus global influences on NZ’s climate, particularly the El Niño–La Niña cycle and sea surface temperatures.’

<http://www.monbiot.com>  
George Monbiot is a best selling author and writes a weekly column for the Guardian newspaper.

<http://www.greenpeace.org.nz/ceg>  
Greenpeace’s Clean Energy Guide contains a wealth of information about climate change and proactive solutions.

<http://www.climatechange.govt.nz/>  
The Ministry for the Environment’s dedicated climate change site.

<http://www.newscientist.com>

<http://www.communitysolution.org>

<http://www.culturechange.org>

## About the Global Education Centre



Global Bits is produced by the community youth arm of the Global Education Centre (GEC), a programme of the Development Resource Centre (DRC) – a not-for-profit, non-governmental organisation governed by a charitable trust. We are core funded by NZAID Nga Hoe Tuputupu-mai-tawhiti (The New Zealand Agency for International Development). The DRC's vision statement is *change for a just world and its mission is informing and educating to empower people to take action to create a just world.*

The Global Education Centre (GEC) provides services to the formal and informal education sectors, and the youth and community sectors on global education through its Schools and Community Youth programmes. GEC provides training and resources to teachers, teacher trainees, students, youth workers and community groups. Services include workshops, youth advocacy, Global Issues magazine, teaching resources, a website including fact sheets and links, and a free lending library.

GEC's sister programme at the Development Resource Centre is Dev-Zone, a resource centre focused on international development and global issues. They operate a free library, manage a comprehensive website, and publish a magazine, Just Change. Services include answering quick enquiries, email updates, information projects, and literature searches on a variety of development topics. Dev-Zone works with the development and human rights sector, as well as students and the general public.



The Global Education Centre is core funded by NZAID – Nga Hoe Tuputupu-mai-tawhiti

## JUST FOCUS

Just Focus is a new project for young people, by young people, focusing on issues that affect us in Aotearoa New Zealand, the Pacific, and globally. The goals of the project are responsible global citizenship and change for a just world.

Just Focus is committed to the full participation of young people to inform and develop the project's content, style and direction.

Just Focus connects a community of young people and provides a way to:

- **Be active** in becoming informed about issues facing the world today.
- **Discuss** these topics with other like-minded young people.
- **Provide inspiration** and tools to take action.

There are three main parts to the project:

### The Just Focus website

The website supports an online community of young people. It's a way to:

- **Connect** with others around NZ, the Pacific and globally
- **Gain information** about issues
- **Express yourself** through the forum, articles or art.

### Local groups

Groups are being set up in the main centres around Aotearoa New Zealand. This is a way for young people to:

- **Meet regularly** face-to-face to discuss and work on issues.
- **Gain skills and knowledge** through workshops and activities.

### Youth Hui

'Global Camps' offer a chance for people throughout Aotearoa New Zealand and the Pacific to get together for training, discussion, campaign building and having some fun.

For more information, email: [info@jusfocus.org.nz](mailto:info@jusfocus.org.nz)

Or check out the site!

Just Focus has been made possible by the Global Education Centre ([www.globaled.org.nz](http://www.globaled.org.nz)) who continues to administer and oversee the coordination of the project.

**Just Focus**  
YOUTH FOCUS FOR A JUST WORLD

[WWW.JUSTFOCUS.ORG.NZ](http://WWW.JUSTFOCUS.ORG.NZ)