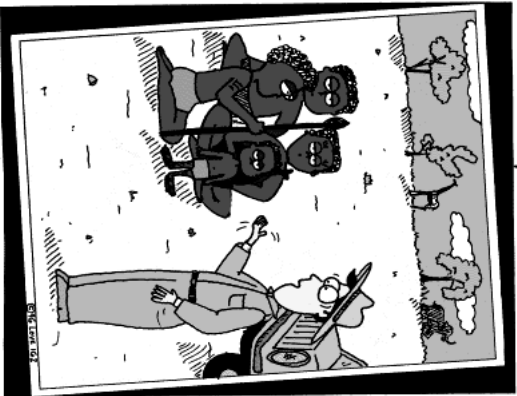


fact sheet one: an introduction to climate change



"You see, there's this thing called global warming, caused by cars, which all my people own, and, well... It's about to end your world."

1. UNDERLYING PRINCIPLES

In the mid 19th century scientists found in the laboratory that each gas has a different capacity to retain and hold heat. Oxygen and nitrogen loose heat rapidly - carbon dioxide, however, is very good at holding heat.

The ability of some gases to retain heat is very important for the functioning of the atmosphere. They allow the sun's rays pass through the atmosphere and warm the earth and then they prevent that heat from being radiated back into space. They function like the glass in a greenhouse- letting through the sun's rays and then holding in the heat. That's why this is called the greenhouse effect:

The gases that have the quality of retaining heat in the atmosphere are called the greenhouse gases. The most important one is carbon dioxide. There are other gases in the atmosphere which are far more powerful but are present in far smaller concentrations. Methane retains 25 times as much heat as carbon dioxide; nitrous oxide 320 times.

Contact: risingtide@risingtide.org.au, 0437 275 119, PO Box 290, Newcastle, NSW, 2300

2. THE PROBLEM

Our whole economy is based on burning coal, oil and natural gas, called fossil fuels. We can't see most of these fires, but just imagine every car on the motorway as a roaring fire, every electricity powerstation as a huge inferno. We all contribute to this through our carbon intensive lifestyle, our cars, home heating, and air travel.

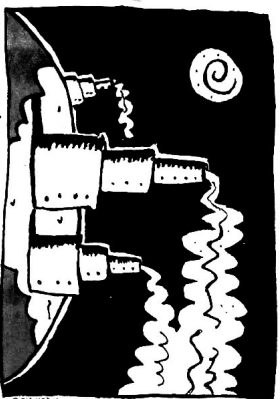
Every time we burn these fuels we produce more waste carbon dioxide. A lot more; hundreds of billions of tonnes a year in fact. Carbon dioxide concentration in the atmosphere has increased by 35% since industrialisation, and will have doubled within a few decades at current rates.

Burning also produces nitrous oxides, also powerful greenhouse gases. We are also dumping new gases in the atmosphere. CFCs (chloroflourocarbons) are used in refrigerators and, although they are present in tiny quantities relative to carbon dioxide they are 9,000 times more powerful at retaining heat (which is what made them so good for refrigeration in the first place!)

The change in the atmosphere will mean that far more of the sun's energy is held within the climate systems, throwing all existing climate systems into chaos. Computer predictions estimate global temperature increases over the next 100 years of across the world by up to 6°C. Scientists know of no time when temperatures have risen faster, and predict catastrophic consequences with an average temperature increase of 2°C or more. In the next fifty years we will see ever increasing extremes of weather. More storms, floods, droughts. Billions more people will face food and water shortages, hundreds of millions will be forced to flee their homelands.

Without radical cuts in greenhouse pollution, by 2050 climate change will have committed 50% of terrestrial species to extinction, destroyed 90% of coral reefs and half the Amazon rainforest.

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END GLOBAL WARMING

DANGEROUS EXPERIMENT
It is absolute scientific fact that the changes we are making to the concentrations of different gases will effect the way the atmosphere behaves. The only areas of debate is how serious the impacts are likely to be. This is a huge and very dangerous experiment with something we don't understand.

WEIGHT OF SCIENTIFIC OPINION

Over 2,000 scientists are directly working on the Intergovernmental Panel on Climate Change to study this problem and its impacts. This is one of the largest mobilisations of scientific research ever undertaken. All the scientists agree that we have a huge problem. In 1997 3,000 scientists signed a Statement on Climatic Disruption. Also in 1997 1,500 scientists including 110 Nobel Prize winners, signed a letter to US President Clinton calling for immediate action. In 1999 the 35,000 scientists in the US Geophysical Union adopted a position calling for action. In May 2001, the national scientific academies of 17 nations including the UK Royal Society signed a statement calling for action.

THE LANGUAGE IS MISLEADING AND SHOULD BE CHALLENGED

The jargon does not reflect the seriousness of the situation.

- * Climate change suggests a slow and steady predictable change. In reality we face a rapid and chaotic flip-flop between extreme weather events.
- * Global warming suggests a slow steady increase in temperatures, like warming a bath. In reality it will not be steady, and local weather chaos may include extremes of cold as well as heat.
- * Talking of Climate suggests something scientific and outside people's concern. But the reality in

people's lives will concern violent changes in weather.
* Some vested interests talk of the "uncertainties" of climate change. There are no uncertainties about the reality of change, only the exact nature those changes will take.

CLIMATE CHANGE HAS ALREADY STARTED

This is not some vague future threat. All around the world rapid changes in the weather are already happening.

The ongoing drought in South East Australia is only a taste of what the next few decades have in store. The 12 months up to March 2001 were the wettest in Britain in 500 years.

The US winter of 1999-2000 was the mildest since records began. The winter of 2000-2001 was the coldest since records began. This is an example of the "flip-flop in extreme weather.

Mozambique in 2000 had the worst floods in 50 years displacing 100,000 people
Northwest India had the worst drought in 100 years in 2000

IF WE DON'T TAKE ACTION IT WILL BECOME FAR WORSE

Beyond 2050 we face the acceleration of the process of climate change. Carbon and methane stored in soils and oceans will start to leak into the air and the natural processes in forests and oceans that remove carbon dioxide from the air will break down. Many now consider that the world has only a decade or so to begin radical reductions in greenhouse pollution, or climate disaster will be unavoidable.

(altered from <http://www.risingtide.org.uk/>)



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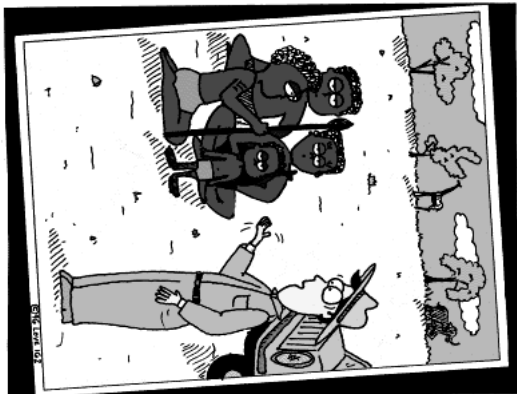
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