

A climate of change

Kicking our fossil fuel addiction

Recent increases in floods, droughts, melting ice caps and temperatures are no accident. **Richard Worthington** argues that we still have the power to reverse such damage if we take climate change seriously and act rapidly.

Live Earth', the latest global music and public awareness campaigning event, aims to build a sense of urgency around climate change through international cooperation and individual behaviour change. The African component of the '7 continents' event will be held in Gauteng, at Maropeng, the Cradle of Humankind World Heritage Site. The concert will form part of an international media event on 07/07/2007, with satellite broadcast targeting the largest ever world television audience.

Few of the thousands of families in Mozambique displaced or impoverished by recent floods will

watch the show, but they, and especially the children, should eventually benefit from increased pressure on political and corporate leaders. The recent floods did not receive the media attention of those six years ago, when a mother gave birth in a tree. It is hoped that combining scientific data, such as used by Al Gore in the film *An Inconvenient Truth*, with celebrities and mass communications, will help to stop devastating floods becoming routine, as part of a global climate catastrophe.

EXTREME WEATHER CHANGES

The increasing rate and severity of floods and other extreme weather, including drought, are the most dramatic evidence of creeping climate changes after fairly stable conditions on earth for over 40 000 years, before the industrial revolution. Other changes include melting ice, from the breaking up of Antarctic ice shelves that could raise sea levels to drown many major cities, to the disappearing ice packs on Mount Kenya and Kilimanjaro that store water and year-round feed the rivers on which communities downstream depend for water.

Conflicts have already arisen over water between those growing crops and those with livestock in the foothills of Mount Kenya. Sea level rise, currently slow, but accelerating, is reducing areas of

prime farmland in river deltas such as West Africa and Bangladesh. Changes in rainfall and growing seasons endanger food security, particularly where huge areas are given over to single crops such as maize. Temperature rises are increasing the ranges of malaria and other insect-borne diseases and reducing the range of species.

The ten hottest years since weather recording began have all occurred since 1990. The elderly and ill are most vulnerable to heat-waves and climate change is expected to worsen the impact of HIV/AIDS. The World Health Organisation estimates that upwards of 150 000 premature deaths annually result from climate change. Warming oceans raise sea levels due to thermal expansion. This kills coral reefs that provide breeding grounds for many marine species and cause storms like hurricanes to become more violent.

WHY THESE CLIMATE CHANGES?

These and many other changes have clear trends, but they are caused by the activities and accelerating consumption of the previous generation and resulting emissions of greenhouse gasses (GHGs). We will not feel the full impact of present GHG emissions, the gasses that cause global warming which change our climate, for about 30 years. This is the challenge of climate change

response. We must change our habits of production and consumption now to slow climate change in the future and so avoid devastating consequences for our children and many generations beyond.

Our life-support system, planet earth, is too cold for human survival without the natural GHGs that trap heat within our atmosphere. The thin layer of air also protects us from the full force of the sun's radiation. Known as 'greenhouse gasses' because they have the effect of glass on a greenhouse, the concentration of these substances [or just GHGs] in the atmosphere, particularly carbon dioxide, has been stable for hundreds of thousands of years. A growing human population has, however, changed the ecosystem, particularly through energy use, initially using wood and more recently fossil fuels.

Most people in Africa still depend for their energy needs on biomass. This is mostly wood, but includes organic matter such as dung, crop residues or grass. Fossil fuels are formed from millions of years of accumulated biomass, buried and then converted by heat and pressure over thousands more years into the hydro-carbon compounds coal, oil and gas. Such concentrated energy, known as stock energy, drives machinery with the power of thousands of horses, processes a variety of metals and transports goods over vast distances. Hydro-carbons also serve as feedstock for a range of chemical products, from plastic pipes and nylon fabrics to pesticides and fertilisers for industrialised agriculture.

Fossil fuels have allowed for rapid industrialisation and the

conversion of natural resources to commodities for human consumption. They also produce pollution, ranging from oil spills and slag heaps to airborne sulphur, particulates (smoke) and heavy metals. They also increase the concentration of GHGs in the atmosphere. Carbon dioxide, responsible for about two thirds of human-induced global warming, forms during fuel combustion. Coal and oil extraction releases poisonous methane gas, as do a number of agricultural activities. Chemical industries release these and a range of other GHGs.

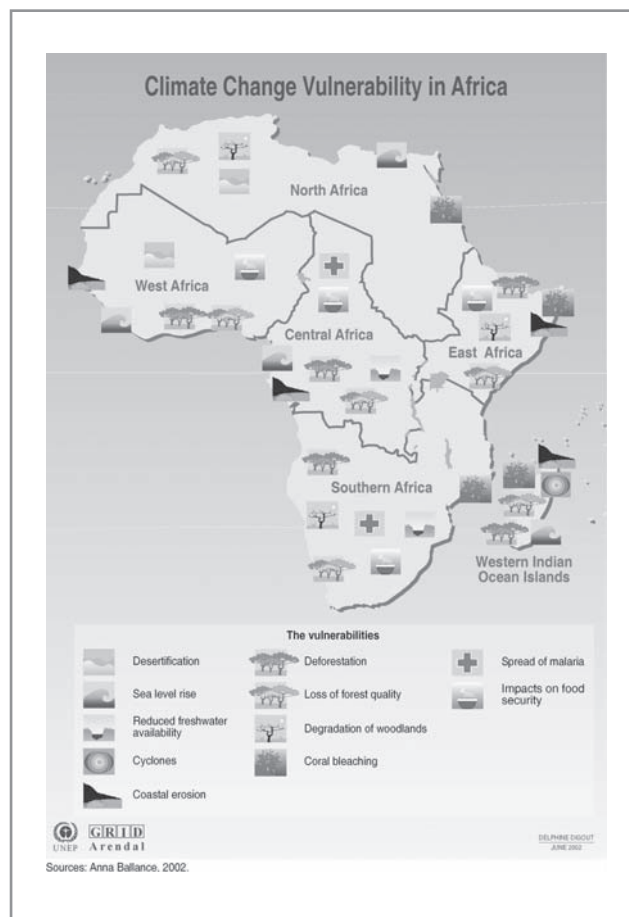
WHAT CAN BE DONE?

Ownership and control of fossil fuel energy results in the concentration of wealth and power. The major oil corporations constitute some of the largest economies in the world and controlling access to fossil fuels is at the top of the global political agenda. The wealthiest countries are generally those responsible for the greatest volume of carbon emissions, both accumulated past emissions, still in the atmosphere, and current emissions per capita (total national emissions divided by population). They can also afford measures to reduce vulnerability to the effects of climate change and adapt to new conditions.

This is the greatest challenge of climate change. Those with the most wealth and power are most able to produce change, but they also benefit in the short term from

doing business as usual. The countries that have the greatest impact are likely to suffer the least from climate change. This lies behind the principle of 'common but differentiated responsibilities' in the United Nations Framework Convention on Climate Change (UNFCCC). The principle applies both to reducing the rate of GHG emissions and to 'adaptation'. The more industrialised countries agreed to support developing countries to adapt to change.

It is this equity dimension of the climate challenge that the US federal administration ignores. This is also the challenge that makes a legally binding multilateral regime so essential to deliver effective action. Americans, with average GHG emissions about seven times that of the people of India and far higher cumulative emissions, have a greater responsibility for easing the problem to which all countries contribute. However, the Bush





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administration is insisting that large developing countries must take on the same kind of commitments as highly industrialised countries, which agreed to limit or put caps on their GHG emissions under the Kyoto Protocol.

The Kyoto Protocol, the implementation mechanism of the UNFCCC to control carbon emissions, was agreed in 1997 and finally came into force in February 2005. The US and Australia signed in 1997, but later refused to ratify and implement the agreement. The Protocol sets caps on carbon emissions of 37 countries, which should keep their emissions 5.2% below 1990 levels during the period 2008 to 2012. Deeper cuts are envisaged in successive five-year periods, with additional countries taking on caps. Developing countries taking on less exacting commitments. But, but a negotiation process for the period post-2012 has not yet been agreed.

Climate science tells us that global emissions must start to decline by about 2020 if we want to avoid climate catastrophe that would displace tens of millions of people and reduce global food production. A recent study by a former chief economist of the World Bank, the Stern Review, indicates that the cost of 'mitigation' (limiting GHGs) will cost about 1% of global economic output or GDP (gross domestic

product). Adapting to the impacts of business as usual would cost upwards of 5% of global GDP. Sub-Saharan Africa is the region that will be the most heavily impacted and will struggle to adapt even to climate change already locked into the system from emissions to date.

South Africa is recognised under the UN as a developing country, due to widespread poverty and the challenges of addressing the legacy of apartheid. However, with our energy-intensive economy and heavy dependence on coal (the most carbon-intensive of fossil fuels) our average emissions are similar to the US and we release more carbon per unit of GDP. We can expect increasing international pressure to limit the growth of our emissions as our economy grows. We should be planning to stabilise emissions around 2020.

Our energy plans cover 20 years, while our power stations and fuel production facilities are expected to operate for over 40 years. Climate change demands forward thinking. We need development planning that considers implications over more than 30 years and investment strategies that value long-term water supply and food security over short-term returns on capital. People before profit!

Some argue that it is only by renouncing the capitalist system that we can avoid climate chaos.

Others argue that the so-called free market simply requires that 'ecological goods' be converted into tradable commodities and that public finance should be made available to private investors to engage in projects that promise trickle-down benefits to the poor majority. This approach insists that voluntary initiatives are more efficient and fair than binding multilateral agreements. It also assumes that technological advances will overcome any limitations on growth or the carrying capacity of our life-support system.

Most people who engage in climate change issues agree that the existing economic system urgently requires corrective mechanisms that attach value to natural resources and ecological services, regulation to limit pollution and stimulate technological innovation, and development finance to deliver public benefits. This will require responsible governments, responding to the present and future needs of people and cooperating globally to drive a transition, from inefficient, 'cheap' and dirty use of concentrated energy, to a sustainable future in which renewable and human energy is valued.

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In the next Labour Bulletin Richard Worthington will discuss how intelligent design and planning, energy efficiency, renewable and human energy could avert the climate crisis and achieve additional public benefits, especially job creation.

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