C I **Carbon trading and climate change**

Small fluctuations in the earth's climate and temperature are nothing new. Throughout history our ancestors endured droughts, floods and famine. To survive, they invented new ways to farm and to hunt, to make their dwellings and to clothe themselves; they migrated across the globe, and they fought each other.

The climatic fluctuations they faced were relatively small. The earth's climate and temperature have been remarkably constant for millennia, with an average temperature of around 15°C – about 33°C warmer than it would have been without a natural greenhouse effect produced by water vapour in the atmosphere. The total amount of heat and light energy absorbed from the sun almost exactly equals the heat energy that radiates out into space – *almost*, because a small amount is captured by plants and oceanic algae for photosynthesis. Photosynthesis converts solar energy, CO_2 and water to energy-dense carbon containing organic molecules, releasing oxygen.

Over millennia the atmosphere was cleared of CO_2 while massive amounts of solar energy accumulated under the earth's surface and the depths of the oceans in carbon reservoirs of oil, coal and gas. This gave us a life-sustaining atmosphere consisting mainly of nitrogen, oxygen and water vapour.

As the atmosphere supports life, so life sustains the atmosphere. It does so through the carbon cycle – a natural carbon-recycling system powered by photosynthesis. Carbon enters the atmosphere from an above-ground pool of biomass in the ocean, soil and plants through respiration, the decay of dead plants and animals, and combustion. It is recycled by photosynthesis. This natural system can recycle a limited amount of carbon between the atmosphere and superficial biomass, but it has no effective way of returning it to the subterranean reservoirs.

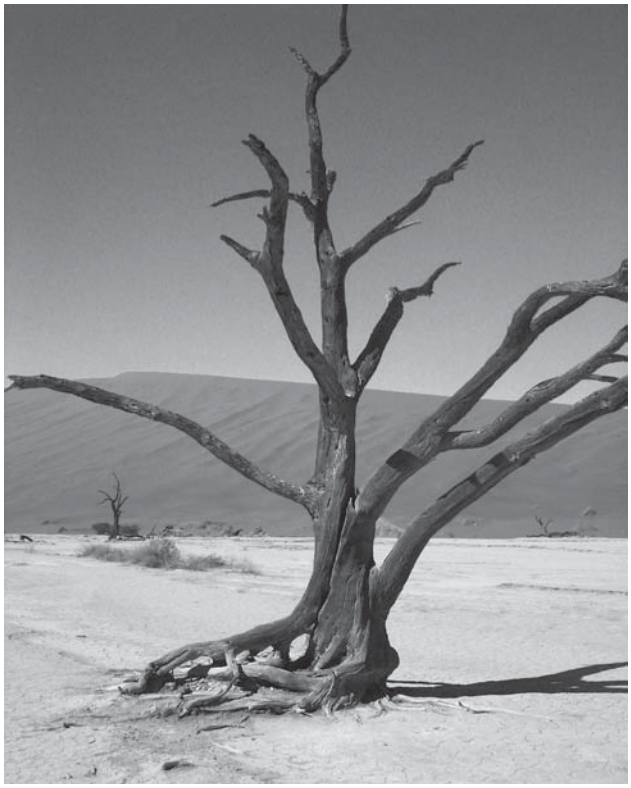

IMAGE C1.1
Dry river bed, Namibia

Until just over two centuries ago the carbon cycle was in balance. But when we discovered that we could unleash the solar energy stored over millennia as coal, gas and oil in carbon reservoirs and use it to drive machines, the amount and the rate at which carbon entered the atmosphere began to increase. This was the start of the Industrial Revolution. It made mechanical work on a massive scale possible. The combustion of fossil fuels pumps between 5 and 6 gigatons per year into the atmosphere. This exceeds the recycling capacity of the carbon cycle by more than 1.6 billion tons per year. At this rate many times more fossil carbon will be added to the atmosphere over this century than since the industrial era began.

The fundamental cause of today's climate change is that we have reversed the overall direction of carbon flow that brought the earth to life and keeps it alive. If it continues, the atmosphere will look more and more like it did before life appeared. It threatens nothing less than planetary death.

How climate change affects health

Climate change is already having profound effects on health. As it continues, this will escalate. People who live in poor countries (those least responsible for producing climate change) will bear a far larger burden than citizens of rich countries whose wasteful lifestyles are the major cause (GHW 2005). Inequality in social and economic development, education, the accessibility and quality of health care, public health initiatives and infrastructure and so on will also be critically important in determining the impact of climate change. Again, it is poor people who will suffer the most.

Increasing temperatures result in an increased number of deaths from heat-related causes. For example, the European summer of 2003 average temperatures were 3.5°C above normal. Between 22,000 and 45,000 people died from heat-related causes. It was the hottest summer ever recorded, with maximal temperatures beyond the range of normal variability. This was not completely unpredictable: climate modelling had shown that the risk of a heatwave of this size had more than doubled as a result of human-induced climate change (Patz et al. 2005).

Apart from the direct heat-related causes of death, climate change can affect human health in many ways. Below are some of the direct and indirect health-related consequences of climate change (GHW 2005):

- Droughts or increased rainfall will damage agricultural systems, thereby threatening the food supply of millions.
- Many people may have to leave their homes as a result of environmental damage or rising sea levels, increasing poverty and dependence on international aid. The Intergovernmental Panel on Climate Change predicts that warming oceans could contribute to increasingly severe hurricanes and cyclones with stronger winds and heavier rains. While it is not possible to attribute specific events to climate change, the events in New Orleans after Hurricane Katrina and the aftermath of Cyclone Nargis in Burma, where tens of thousands were killed and hundreds of thousands made homeless, show the kind of devastation that can be expected.
- Deaths will increase as a result of extreme temperature changes – both hot and cold. Children and the elderly will be particularly vulnerable. A rise in heat-related deaths in hot countries will be larger than any fall in cold-related deaths in cold countries (McMichael et al. 2006).
- Infectious diseases will increase, especially those transmitted by mosquitoes. Diseases such as malaria and dengue fever will increase in their current regions and may spread to nations which currently do not have such illnesses.

- Polluted water supplies will heighten the risk of diarrhoeal diseases including typhoid. Malnutrition will increase in poor communities; along with causing mortality, it may also damage child growth and development.
- Rodent-borne diseases may also increase as a warmer climate allows them to seek habitats in new areas. This increases the risk of illnesses such as Lyme disease and tick-borne diseases.

It is believed that at current trends there will be an increase of 2°C by 2050 (GHW 2005). This could result in:

- 220 million more people at risk from malaria;
- 12 million more at risk from hunger as a result of failing crops;
- 2,240 million more people at risk from water shortages, particularly in developing nations.

Meeting the challenge of climate change

Though climate change is the most serious threat we have faced throughout human history, very few leaders are prepared to tackle the problem at its roots. Despite the flourishing denialist industry, the main problem is not denial but rather that powerful countries and groups are seeking to turn the crisis to their own advantage. They have steadily entrenched their power over the past two decades.

In *Carbon Trading: A Critical Conversation on Climate Change, Privatization and Power*, Larry Lohmann, of the Corner House,[1] argues that a new enclosure movement has formed around three interlinked and mutually reinforcing strategies aimed at depoliticising the climate change debate and trapping 'official international action … within a US-style framework of neoliberal policy'. The three strategies are the knowledge fix, the technological fix, and the market fix (Lohmann 2006).

The *knowledge fix* aims to reshape or suppress public understanding of the problem so that reaction to it presents less of a political threat to corporations. Here is how it works.

By the mid-1980s, mounting evidence of rising atmospheric CO_2 levels and concern among climatologists about global warning led to a series of landmark conferences for scientists (e.g. Villach, Austria, in 1985) and policymakers (e.g. Bellagio, Italy, in 1987). At the Villach conference climatologists warned of a rise in global temperature 'greater than any in man's history' in the first half of the twenty-first century, and of the prospect of rising sea levels. Faced with this clear warning the US government moved to shift the scientific climate change debate away from independent

academics towards government-linked science bureaucracies. These include the Intergovernmental Panel on Climate Change (IPCC), established in 1988 to look at the science and consequences of global warming (Lohmann 2006).

Lohmann describes clearly how these bureaucracies are subject to US and corporate influence, and increasingly to that of other Northern governments. This is not to say that the IPCC is *directly* controlled by these forces; the ways in which power influences science are complex and subtle. They can best be understood if we first accept that scientific agendas reflect specific political and economic contexts. The questions scientists ask, the way they seek the answers, and the way they communicate their findings to policymakers and the public reflect the prevailing political and economic milieu and the dominant mindset. They are influenced by competition for, and sources of, funding; the power of the corporate-owned media; culture; and so on.

In a world dominated by neoliberalism, the scientific research agenda is biased towards seeking technological or market-related solutions. And, since scientific bodies like the IPCC require consensus before issuing reports, the language in their reports avoids contentious issues and reflects the lowest common denominator. To free climate science from neoliberal domination we must accept that science is unavoidably heavily politicised and, rather than plead for 'objective science', oppose the neoliberal project globally in all its manifestations.

Public understanding of climate change is also influenced by a host of think-tanks, corporate-backed NGOs, and business groupings linked to the oil, energy, transport and other related industries whose aim is to spread disinformation and to perpetuate the idea that anthropogenic climate change is controversial. This includes the still flourishing denialism industry, which George Monbiot describes very well in *Heat,* his excellent book on global warming (Monbiot 2006).

As with science, the mass media approach to climate change also tends to follow the neoliberal paradigm, focusing almost exclusively and uncritically on technical magic bullets and carbon trading. This includes Nobel prizewinner Al Gore's film *An Inconvenient Truth*, which, though very informative about climate issues, seeks solutions in carbon trading, tree planting and other technical approaches.

The *technological fix* is based on the notion that the solution to climate change lies in new technology that will allow continued exploitation of fossil fuels and continuing profit for the oil and motor corporations. Examples include giant mirrors in space to reflect solar energy; spraying the stratosphere with fine metallic particles to reflect sunlight (Edward Teller,

the father of the hydrogen bomb, argued that such unilateral action to dim the sky would be cheaper than seeking 'international consensus on … reductions in fossil fuel-based energy production'); massive tree plantations – perhaps using genetically modified trees – to mop up CO_2; bio-fuels; injecting CO_2 into the deep ocean; and seeding the oceans with iron filings to encourage the growth of CO_2-absorbing plankton.

The US National Science Foundation is discussing 'creating a biological film over the ocean's surface to divert hurricanes', and scientists convened by the George W. Bush White House have proposed a fleet of giant ocean-going turbines to throw up salt spray into the clouds to increase their reflectivity (Lohmann 2006).

While such technical approaches will give corporations exciting and lucrative business opportunities, their unintended ecologic results do not seem to merit much attention; nor does the more fundamental idea of cutting down on energy expenditure as a means of reducing fossil fuel extraction and emissions.

The *market fix* is the third leg of the global strategy to depoliticise climate change while simultaneously creating new opportunities for corporate profit-making. Following the idea of marketable pollution rights, proposed by the Canadian economist John Dales in the 1960s to control water pollution (Erion 2005), the market fix for climate change developed in the wake of the 1987 Montreal Protocol that established pollution trading as a means to control substances that damage the ozone layer. This was followed by a system of emissions trading introduced by the United States government in 1990 that set targets for reducing sulphur dioxide emissions that were causing acid rain.

In 1992 the United Nations Framework Convention on Climate Change (UNFCC) was presented for ratification with the stated aim of achieving 'stabilization of greenhouse gas concentrations in the atmosphere'. Though it did not set specific targets, it provided for subsequent updates. The most important update is the 1997 Kyoto Protocol (Kyoto), which aims to bind industrialised countries to a 5.2 per cent reduction in greenhouse gas emissions from 1990 by 2012.[2]

Pushed by the US, pollution trading came to form the core of Kyoto (no doubt pleasing bankers and companies who hoped to profit from the lucrative trade in carbon). Carbon trading allows countries or corporations to balance their CO_2 emissions by buying 'carbon credits' from others who emit less than their own target maximums. This allows major polluters to avoid the modest cuts required under Kyoto.

Article 17 of the Protocol establishes a system of 'Emissions Trading' where Annex 1 countries[3] can trade emission credits among themselves.

The next type of carbon trading, 'Joint Implementation', allows Annex 1 countries to invest in other Annex 1 countries to help them reduce emissions. The investing country gets the credits.

In practice, neither Emissions Trading nor Joint Implementation has played a significant role in the global carbon market. The main area of carbon trading falls under Article 12, the 'Clean Development Mechanism' (CDM). The CDM allows countries to avoid emission cuts at home by investing in UN-approved greenhouse-gas-saving projects such as wind farms, methane capture, biofuels and so on, in poor countries.

The CDM has two broad objectives. First, it has to help Annex 1 countries meet their emission reduction commitments. Second, it must help poor countries to achieve sustainable development. Both these goals raise controversial issues. A complex bureaucratic set of processes and structures have been set up to assess these questions.

To qualify for the CDM a project has to show that its emissions reductions are *additional* to those that would have happened if the project did not exist. If so, it qualifies for certified emissions reductions (CERs). These ingenious so-called 'clean development mechanisms' prevent any possible shortage of quotas; their supply can be increased as necessary. The UN does not charge for CERs, and investors can either use them to meet their Kyoto commitments or sell them on the market like state-allocated quotas. Writing in *Le Monde Diplomatique*, Aurélien Bernier (2008) describes how the creation of CERs actually *increases* the amount of carbon currency circulating on the global market. The price of carbon credits have plummeted to well below that required to reduce emissions or to give polluters any idea of their real cost.

Furthermore, in addition to the controversy surrounding CERs, the CDM does not have a universal definition of what sustainable development means; nor can it hold projects accountable in meeting this criterion.

Carbon trading and human rights

Greenhouse gas trading as set out in Kyoto establishes 'property rights' in the earth's carbon-cycling capacity (Lohmann 2006). This notion of 'rights' needs careful scrutiny.

The 1948 Universal Declaration of Human Rights sees human rights as inalienable and indivisible. All of us possess them in equal measure by simple virtue of the fact that we are human. Since fixed carbon is fundamental to all life, each one of us has a just claim to a fair and equal share of the earth's carbon cycling capacity – our human rights must include the rights to use and emit a certain amount of carbon.

IMAGE CI.2 **Busy street in Cairo**

But how big is our fair share? If we want a stable and healthy planet for ourselves, and our grandchildren, then the total amount of all our emissions cannot exceed the amount that the earth can recycle. To meet this requirement, a drastic cut – of the order of at least 60 per cent – in global greenhouse gas emissions is an absolute requirement. To calculate our fair share of emissions we must first cut current global emissions by 60 per cent and then divide the remainder by the earth's total population. This is the idea behind *Contraction and Convergence*, which is well described by Monbiot (2006).

If I claim more than my fair share, then one of two things must follow. Either others must make do with less than their fair share, or CO_2 must accumulate in the atmosphere and climate change will accelerate. To claim as a 'right' any use of carbon that exceeds my fair share is a fundamental contradiction of the principles of human rights.

In poor countries, most people do not have the means to access their fair share. Rich people, on the other hand, consume vastly in excess of theirs. The carbon market assigns a uniform price to the 'luxury emissions' of the First World and the 'survival emissions' of the Third World (Narain and Agarwal 2006). Carbon trading amounts to the privatisation of the world's capacity to maintain a life-sustaining climate. Thus the 'rights' granted by Kyoto have been appropriated by the rich and powerful, and in particular by those who, historically, have been the worst polluters. Again, this is the very antithesis of any notion of human rights.

Instead of cutting the extraction of fossil fuels, the practical results of current carbon-trading policies actually *promote* fossil fuel burning. Other current solutions such as tree plantations and biofuels often drive people out of their traditional living grounds, destroy biodiversity, and lead to increased food prices as people are forced to compete with motor cars for the products of land use. Not surprisingly, this system sets up political conflicts and blocks effective climate action.

The way forward?

Fundamentally, we can only combat climate change and secure a liveable world for our children and grandchildren if we leave sequestered carbon – coal, oil and gas – under the earth's surface in the reservoirs nature created. There is no doubt that this is a daunting task.

Possible ways forward are easier to see if we remember that the knowledge fix, the technology fix and the market fix are pushed by a small group of people and neoliberal institutions.

Lohmann (2006) suggests that a good way to start would be a package of approaches already making headway in Northern countries where steep cuts in fossil fuels are high on the agenda. The package includes:

- Large-scale public works programmes to help reorganise infrastructure away from dependency on fossil fuel by, for example, revamping transport systems, decentralising electricity supply and developing solar and wind power.
- Phasing out subsidies aimed at promoting fossil fuel and car use, airport expansion, deforestation, the military, while scaling up subsidies for solar and wind energy, more energy-efficient housing, better insulation, and other genuinely green technologies that do not affect local communities adversely (as forest planting and gas extraction projects from landfill sites tend to do).
- Regulations that set strict standards for buildings, transport and land use planning.
- Phasing in taxes on carbon use and the use of materials like throwaway metal, water, wood and plastics.
- Use of the courts to apply human rights law to, say, greenhouse gas polluters.

These strategies should be backed and monitored by popular movements and held to account against clear short- and long-term targets. Where appropriate, they should be controlled by local communities. Vulnerable and marginalised groups must be included in all their diversity.

As in struggles around health, the fundamental problems of climate change are more political than technical. Ultimately, we cannot deal with climate crisis without all the painstaking work that goes into democratic mobilisation and political organisation and struggle. This involves building alliances around the many issues closely or loosely relevant to climate change that affect people in many different ways. As Lohmann (2006) says, 'the fight against global warming has to be part of the larger fight for a more just, democratic and equal world.'

Notes

1. The Corner House publishes regular briefing papers on a range of topics. It supports democratic and community movements for environmental and social justice. www.thecornerhouse.org.uk.
2. *Editorial comment*: Different perspectives are held on the potential of carbon trading as a means to reduce carbon emissions. Two positions are reflected within this edition of *Global Health Watch*. For an alternate perspective, please see Section A.
3. Annex I countries are those countries that have agreed to binding targets under Kyoto. They have to submit annual greenhouse gas inventories. Countries that have no such obligations (i.e. poor countries) but who may participate in the CDM are known as 'non-Annex I countries'.

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