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A DANGEROUS OBSESSION

THE EVIDENCE AGAINST CARBON TRADING AND FOR REAL SOLUTIONS TO AVOID A CLIMATE CRUNCH



A RESEARCH REPORT



Friends of the Earth

FOREWORD

The authors of this report have done a masterful job of drawing together a highly dispersed literature representing more than a decade of critical perspectives on carbon trading. This critique is based on the inability of carbon markets to achieve greenhouse gas reductions on the scale required to avert highly disruptive temperature increases by mid-century.

The report catalogues the repeated failure of global and regional carbon trading to deliver in its own terms as expressed in the promises of its advocates. The authors decisively reject the argument that the disappointing record of attempts to construct carbon markets is due to “teething problems” or because we have not tried hard enough. Rather, they demonstrate that the carbon trading architecture is fundamentally unfit for purpose and cannot possibly deliver the stabilisation of atmospheric greenhouse gas concentrations that the scientific community is calling for in the time frame that matters.

Far from proving to be an economically efficient instrument, carbon trading and offsetting have been beset by inefficiency and, in places, corruption and are set to become the next subprime crisis.

While various voices in academia and the environmental movement have been expressing these views over the past decade, they have largely been ignored, or even actively muffled, by those who have sunk their political capital into the carbon trading architecture. Indeed, support for carbon trading seems to have become a litmus test of “climate correctness.” Against this background, publication of this report is an act of genuine courage on the part of Friends of the Earth. It is earnestly to be hoped that its voice will be heard loud and clear at Copenhagen and beyond.

Professor Steve Rayner

Director, Institute for Science, Innovation & Society, Saïd Business School, University of Oxford

Author

Sarah-Jayne Clifton

Editorial team

Editor: Martin Cullen

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ABOUT THIS REPORT

This report has been prepared by Friends of the Earth England, Wales and Northern Ireland for its Demand Climate *Change* campaign. The report is being distributed to decision makers, media and campaigners ahead of the UN climate talks in Copenhagen in December 2009. The report evaluates whether carbon trading can deliver the necessary emissions reductions to avoid dangerous climate change quickly, strategically, and in a just and equitable way. It also looks at what alternative tools are available to governments.

This report is available online at: www.foe.co.uk/resource/reports/dangerous_obsession.pdf

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EXECUTIVE SUMMARY

Section 1: Introduction

Tackling greenhouse gas emissions to prevent dangerous climate change is one of the most pressing challenges facing humanity. The chance of keeping global average temperature increase below the critical threshold is fast slipping away. It requires a peak and decline in global emissions by 2015. Rich developed countries are responsible for three quarters of emissions historically despite representing only 15 per cent of the world's population. They have a legal and moral obligation to make the biggest reductions and provide finance and technology to developing countries to compensate for climate impacts and support clean development. But developed countries have largely failed to take sufficient action to reduce greenhouse gas emissions or provide this much-needed finance to the developing world.

In this context carbon trading is increasingly being put forward as a tool for tackling climate change. Proponents of carbon trading argue that it helps to reduce emissions, and that it does this at the lowest cost, stimulates investment in low-carbon infrastructure and can help generate finance for developing countries to tackle climate change.

This report evaluates whether carbon trading can deliver these emissions reductions quickly, strategically, and in a just and equitable way. It also looks at what alternative tools are available to governments.

Section 2: Carbon trading – the basics

About carbon trading

- Carbon trading is the buying and selling of an artificial commodity – the right to emit carbon dioxide.
- It is a market-based mechanism and is an indirect tool for tackling emissions, in contrast to more direct tools available to governments such as investment and regulation.
- Emissions trading schemes (ETSs) are created by government action in the following steps:
 - An upper limit – or cap – is set on emissions from a sector or sectors of the economy.
 - Businesses in those sectors are given or auctioned permits for a proportion of those emissions.
 - Businesses that don't use all of their allowances can sell their surplus to others that exceed their allowance.
- All existing and planned ETSs allow for the inclusion of offsetting.
- A wide variety of actors including banks and investment funds are active in the carbon markets and there is increasing use of complex financial instruments known as derivatives.

The global carbon market

- ETSs are already operating or planned in 35 countries around the world.
- The European Union Emissions Trading Scheme (EU ETS) is the world's largest carbon trading market.
- The global carbon market has roughly doubled in size every year since 2005 and was worth US\$126 billion in 2008.
- It has been predicted to grow to a market value of US\$3.1 trillion per year by 2020.
- UK businesses are the biggest investors in carbon offset projects globally.
- The UK Government and the European Union are major proponents of carbon trading. They are pushing for the extension of the schemes to developing countries and the inclusion of new international carbon trading mechanisms in international climate negotiations.

Section 3: Are carbon markets working?

Problems with carbon trading

The report identifies six central problems with carbon trading, namely that it:

- Is ineffective at driving emissions reductions.
- Fails to drive technological innovation.
- Leads to lock-in of high-carbon infrastructure.
- Allows for, and relies on, offsetting.
- Creates a risk of subprime carbon.
- Provides a smokescreen for lack of action on climate finance by the developed world.

The report finds that:

- **Carbon trading fails to deliver necessary carbon cuts or technological innovation**

Carbon trading is not achieving the emissions reductions promised, nor is it driving the major technological innovations that are needed to shift our economies to low-carbon pathways. The first phase of the EU ETS (2005-2007) has failed and Phase II (2008-2012) looks on course for a similarly dismal outcome. The perverse incentives created by the trading mechanism itself – particularly the focus on low-cost solutions – is further locking us in to high-carbon pathways. The UK's respected Committee on Climate Change recently confirmed this: "We cannot therefore be confident that the EU ETS will deliver the required low-carbon investments

for decarbonisation of the traded sector through the 2020s. Given this risk, the Committee recommends that a range of options such as regulation and taxes for intervention in carbon and electricity markets should be seriously considered."

- **Carbon trading relies on offsetting – a dangerous distraction**

All existing and planned emissions trading schemes allow for the inclusion of offsetting and, to a great extent, rely on the ability of firms to purchase offset credits to escape their emissions cap by paying for reductions to take place elsewhere. Offsetting is profoundly unjust, fundamentally flawed and cannot be reformed. We need emissions cuts in both developed and developing countries in order to avoid catastrophic climate change. Offsetting projects frequently do not deliver emissions reductions at all, and are sometimes worse than doing nothing.

- **Carbon trading risks carbon subprime**

The complexity of the carbon markets, and the involvement of financial speculators and complex financial products, carries a risk that carbon trading will develop into a speculative commodity bubble that could provoke a global financial failure similar in scale and nature to that brought about by the recent subprime mortgage crisis. Such a crisis risks further undermining the effectiveness of trading as a tool for delivering cuts in emissions, and would increase the risk of dangerous climate change.

"WE CANNOT THEREFORE BE CONFIDENT THAT THE EU ETS WILL DELIVER THE REQUIRED LOW-CARBON INVESTMENTS FOR DECARBONISATION OF THE TRADED SECTOR THROUGH THE 2020s. GIVEN THIS RISK, THE COMMITTEE RECOMMENDS THAT A RANGE OF OPTIONS SUCH AS REGULATION AND TAXES FOR INTERVENTION IN CARBON AND ELECTRICITY MARKETS SHOULD BE SERIOUSLY CONSIDERED."
UK COMMITTEE ON CLIMATE CHANGE

- **Carbon market finance is a smokescreen for lack of action**

Carbon markets are failing to generate the much-needed finance for developing-country mitigation and adaptation. What's more, developed countries are using the prospect of increased carbon market finance to hide from their commitments under the United Nations Framework Convention on Climate Change (UNFCCC) to provide new and additional sources of finance to developing countries. Carbon market finance comes from offsetting developed-country emissions cuts which should be additional. Counting it towards the financial commitments of developed countries is double counting.

Section 4: Can the problems with carbon trading be overcome?

The report finds that:

- **Proposals to reform and extend carbon trading are unrealistic**

Powerful vested interests from industry and finance have exerted a significant influence over emissions trading schemes. Given these interests' historical impact and continued influence it is likely that the sweeping changes needed to emissions trading schemes would meet powerful resistance. Wholesale reform of carbon trading in the time available looks unrealistic.

- **Proposals to extend carbon trading are dangerous**

It is implausible that a global cap and trade system could be established within the time frames necessary to avoid dangerous climate change, even if it could be agreed and made just, equitable and operationally effective. Pursuing carbon trading as a key tool for tackling climate change at the expense of more effective policy instruments is therefore a highly dangerous obsession.

- **The real driver behind the UK and EU agenda is economic interest**

The UK and EU have invested significant time and resources developing their carbon trading scheme and therefore have a strong financial self interest to make it work and see it expanded elsewhere. Industry and finance are key driving forces behind the push to see carbon trading expanded globally.

Section 5: Alternatives to carbon trading

- **Focus on simple, direct and proven policies**

There is growing support for more direct government intervention in response to the global climate crisis. This report argues that this intervention should focus on delivering the structural transformation of national economies and their global linkages in order to reduce dependency on fossil fuels, ie direct intervention to decarbonise the economy. The policies which could be mobilised are already in use – taxation, regulation and direct public investment are employed by governments in a wide range of areas and are proven to be effective.

- **Beyond direct decarbonisation – addressing global inequity and unsustainable consumption**

Tackling climate emissions globally also necessitates policies that address the unequal distribution of the means to tackle climate change, ie efforts to stem the flow of resources from South to North and ensure developing countries have adequate resources to tackle climate change, and pursue low-carbon development and poverty reduction.

- **Funding sources for decarbonisation**

The scale of the climate change threat requires a response of a similar scale to the response to the global economic crisis. Carbon taxes have the potential to generate significant revenue to fund climate mitigation and low-carbon development whilst also driving emissions reductions. Reprioritisation of government finances is also necessary, including an end to perverse subsidies like those for fossil fuels.

This report supports a new approach to tackling climate change which relies on policy tools that are simple, direct, and proven to be effective. As highlighted by Lord Nicholas Stern, climate change is the greatest market failure the world has ever seen. Relying on indirect, untested and unproven mechanisms such as carbon trading to address this fundamental threat to humanity and the environment is high-risk, irresponsible and dangerous.

The report makes three sets of recommendations covering emissions trading schemes, alternative tools for tackling emissions, and wider changes needed to address climate change in a just and equitable way:

1. Emissions trading

- Halt expansion of emissions trading schemes globally.
- No linking of emissions trading schemes.
- Fundamental reforms to existing schemes such as the EU ETS to close loopholes, including the removal of all forms of offsets, and ensure they are not subject to abuse and profiteering by industry and finance.
- Focus government policy-making and spending on the rapid deployment of the proposals set out below.

2. Developed-country emissions cuts – rapid deployment of direct, tried and tested policy tools

Developed-country governments must agree to emissions cuts of at least 40 per cent on 1990 levels by 2020, excluding offsetting, and adopt a huge transformational agenda to ensure that these cuts are delivered.

This programme should comprise:

- **Taxation:** Increased use of hypothecated and escalating carbon taxes to drive behavioural change and provide government revenue for low-carbon investment.
- **Standard setting and direct regulation:** A return to the use of proven, direct regulatory approaches to drive emissions reductions by heavily polluting industry, incorporating key lessons from the successes of the EU's Integrated Pollution Prevention and Control directive.
- **Public finance:** A major increase in public investment to address the climate crisis, prioritised in the research, development and deployment of renewable energy, improvements to energy efficiency, and low-carbon public infrastructure, including sustainable transport. New carbon taxes and other innovative instruments such as a Tobin tax could provide new sources of funding for these investments, but it will also necessitate a reprioritisation of government spending and an end to perverse subsidies such as those to fossil fuels.

All policies should be underpinned by greater transparency and scrutiny in formulation and decision-making. All policies should also ensure a just transition for workers in affected industries and include actions to mitigate against any regressive impacts on low-income and other vulnerable groups.

3. Addressing global inequality and supporting low-carbon development in developing countries

Urgent action should be undertaken by developed countries to support climate mitigation and adaptation in developing countries and to address historic patterns of uneven and inappropriate development.

- **New and additional climate finance:** Developed countries must deliver on their commitment through the UNFCCC to pay the full incremental costs of climate mitigation and adaptation in developing countries. This requires the urgent commitment and delivery of significant public funds of at least €200 billion per year by 2012 from developed countries overall. This finance must be delivered under the authority of the UNFCCC and ensure respect for human rights and a focus on social and environmental outcomes.
- **Technology transfer / intellectual property rights:** Supporting developing countries in making emissions cuts necessitates large-scale technology transfer of environmental goods and services. Current intellectual property rights stand in the way of this and must be tackled.
- **Stopping unfair trade and investment policies:** International trade and investment agreements are a driving force behind the growth of energy-intensive industries and also undermine development prospects in developing countries. A major refocusing of global trade and investment rules is needed.

- **Unconditional cancellation of illegitimate foreign debt:** Developing countries cannot be expected to pay for emissions reductions while paying US\$100 million per day in debt to the developed world. There must be 100 per cent cancellation of all unpayable and unjust debts, and US\$400 billion in immediate debt relief.

- **A new development paradigm:** Developed countries must stop promoting export-led development that contributes to climate change and instead prioritise support for sustainable livelihoods and poverty reduction.

- **Addressing unsustainable consumption:** Rich countries use far more than their fair share of the world's resources. This is unsustainable and unjust, and rich countries must set targets to reduce their resource use and put in place plans to achieve them.

INTRODUCTION

Climate change: the science and the scale of the threat

The need to reduce greenhouse gas emissions urgently is one of the foremost and most pressing challenges facing humanity. It is now accepted that an average global temperature increase of more than 2 degrees Celsius above pre-industrial levels would have potentially devastating impacts on the world's population and the ecological systems that sustain us. According to the United Nations' Intergovernmental Panel on Climate Change (IPCC), the leading scientific body for the study of climate change and its impacts, failing to keep within the 2 degree threshold will lead to mass extinctions of species, and put millions of people globally at risk from crop failures, water shortages, flooding and homelessness.¹ Even a rise of 1.5 degrees is regarded as highly dangerous. An increase to this level would threaten the very existence of low-lying small island states and the Alliance of Small Island States (AOSIS) is calling for the global community to aim for a 1.5 degree target.²

According to a report by the Global Humanitarian Forum, by the year 2030, the lives of 660 million people are expected to be seriously affected, either by natural disasters caused by climate change or through gradual environmental degradation.³ Furthermore, the report estimates that the number of deaths from weather-related disasters and gradual environmental degradation due to climate change is expected to jump to about 500,000 people per year

over the next twenty years. Even if we manage to stay within the critical threshold, significant impacts for humanity and the environment are likely. Indeed the impacts of climate change are already being felt with the increased incidence of drought, flooding and a greater frequency of high-impact weather events taking place globally.⁴ Several hundred million people are already seriously affected by climate change today, with several hundred thousand annual deaths directly attributable.⁵

Uneven historical responsibility

Developed countries, while representing only around 15 per cent of the world's population, are responsible for almost three quarters of greenhouse gas emissions historically. This stark inequality in terms of responsibility for climate change persists today, with emissions per person currently around 6-7 times greater in developed countries than in developing countries.⁶ Although they are not responsible for creating the problem, the poorest people in developing countries are likely to be hardest hit by climate change. Indeed poor communities in the global South are already feeling the impacts of climate change disproportionately⁷ and there are already growing numbers of people displaced by climate change, including communities displaced by sea-level rise in the Pacific.⁸

The backdrop: global (in)action

In Rio de Janeiro in 1992 the international community agreed a new environmental treaty setting out a framework for intergovernmental efforts to tackle climate change. The United Nations Framework Convention on Climate Change (UNFCCC) has now been ratified by 192 countries and Article 2 of the treaty commits all signatories, including the United States, to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous climate change.

A synthesis of climate models published in 2006 suggests that keeping the concentration of carbon dioxide equivalent (CO₂e) in the atmosphere below 450 parts per million by volume (ppmv) gives us a 50 per cent chance of not exceeding 2 degrees.⁹ A 50 per cent chance is still not the most comfortable of odds when millions of lives are potentially at risk. What's more, research by the UK's Tyndall Centre for Climate Change Research suggests that even to achieve this requires global CO₂e emissions to peak in 2015, ie in less than six years from now, and to fall by four per cent per year after that.

The UNFCCC is based on the principle of equity, and common but differentiated responsibilities. In the Convention, developed countries recognise their greater responsibility for damage done to the environment and contributing to climate change, and for actions needed to address this. The Convention also recognises the priorities of developing countries to use their own limited capacity to pursue sustainable development and

poverty reduction goals in order to address the deep inequalities that exist between standards of living in developed and developing countries. With these issues in mind, developed countries have committed under the UNFCCC to:

- Take the lead on reducing their own greenhouse gas emissions
- Provide financial and technological assistance to developing countries to support and enable those countries to mitigate their own greenhouse gas emissions
- Support developing countries as they adapt to the impacts of climate change and pay for damage done by providing adaptation finance.

Despite these international commitments, however, woefully little progress has been made in any of the above three areas since the signing of the UNFCCC in 1992. Massive support is needed by developing countries to switch to low-carbon development pathways in order to meet the dual challenges of climate change and poverty reduction. According to the 2009 United Nations Social and Economic Survey: "Such a switch would entail unprecedented and potentially very costly socio-economic adjustments in developing countries – adjustments, moreover, that will have to be made in a world more rife with inequalities than at any time in human history. If it is to happen, the switch will require a level of international support and solidarity rarely mustered outside a wartime setting."¹⁰ Yet developed countries' financial and technical support for developing countries has been pitiful. According to the Survey:

“MOST DEVELOPING COUNTRIES DO NOT CURRENTLY HAVE THE FINANCIAL RESOURCES, TECHNOLOGICAL KNOW-HOW AND INSTITUTIONAL CAPACITY TO DEPLOY SUCH STRATEGIES AT A SPEED COMMENSURATE WITH THE URGENCY OF THE CLIMATE CHALLENGE. FAILURE TO HONOUR LONG-STANDING COMMITMENTS OF INTERNATIONAL SUPPORT IN THOSE THREE AREAS REMAINS THE SINGLE BIGGEST OBSTACLE TO MEETING THE CHALLENGE.”
UN SOCIAL & ECONOMIC SURVEY, 2009

“Most developing countries do not currently have the financial resources, technological know-how and institutional capacity to deploy such strategies at a speed commensurate with the urgency of the climate challenge. Failure to honour long-standing commitments of international support in those three areas remains the single biggest obstacle to meeting the challenge.”¹¹

Developed countries have also largely avoided taking substantial action to reduce global greenhouse gas emissions. Emissions have continued to increase, and have even accelerated since 2000.¹² Although a few developed countries are on track to meet their emissions reduction targets under the Kyoto Protocol, based on current trajectories Annex I (developed country) signatories to the Protocol as a whole look likely to fail their targets under the first commitment period (2008-2012). Furthermore, a large proportion of

the limited cuts that have been made have been delivered through offsetting rather than real action in developed countries themselves.

The commitments made by developed countries so far also fall far short of what is necessary. At the UNFCCC talks in Copenhagen in December 2009, signatory countries are tasked with agreeing new emissions reduction targets for Annex I countries for the next commitment period of the Kyoto Protocol starting in 2013. The IPCC suggests that to have at least a 50 per cent chance of avoiding a 2 degree rise, we need to see a 25-40 per cent reduction in emissions from developed (Annex I) countries by 2020 and a 15-30 per cent reduction below 'business-as-usual' baseline emissions levels for developing (non-Annex I) countries by 2020.¹³

A 50 per cent chance is quite high risk, and furthermore a 2 degree rise would still mean significant climate impacts and threaten the existence of low-lying island states.¹⁴ As a result, reductions of at least 40 per cent by 2020 are needed from Annex I countries. However, nothing approaching these commitments is being put forward by developed countries in the UNFCCC negotiations. The European Union has so far committed to the highest targets for the second commitment period, but even it has offered reductions of only 20 per cent by 2020, or 30 per cent conditional on other developed countries making similar commitments. Furthermore, it plans to deliver half of these reductions through offsetting, not through direct reductions to EU emissions.

Carbon trading – solution or Trojan horse?

It is in this context – of a lamentable failure by developed countries to take real action either in reducing their own greenhouse gas emissions or supporting developing countries to make their own reductions – that discussions about carbon trading are moving rapidly up the global agenda. Carbon trading is purportedly a tool to help countries reduce emissions, stimulate investment in low-carbon infrastructure, and generate government revenue that could be used towards further mitigating against climate change or adapting to its consequences. It is being energetically advanced by certain developed country governments, predominantly by the UK, the United States, and the European Union, as well as by interest groups linked to emissions trading systems.

Proponents of emissions trading argue that this mechanism can deliver guaranteed levels of emissions cuts at the lowest cost. Even though carbon markets are created by government regulation, emissions trading is generally categorised as a 'market-based' mechanism. Its proponents argue that this type of government intervention works better than more traditional direct government interventions such as standard setting and taxation.

The European Union's Emissions Trading Scheme (EU ETS), established in January 2005, is the largest multi-country, multi-sector greenhouse gas emissions trading system in the world.¹⁵ National carbon trading schemes are planned in 35 countries worldwide, with the EU ETS likely to be dwarfed by the nation-wide trading scheme currently being planned and legislated for in the United States.

However, despite this powerful drive for the expansion of emissions trading schemes, concerns about carbon trading are growing. These concerns range from doubts over the ability of emissions trading to deliver cuts in greenhouse emissions, to wider impacts and potential risks associated with it. Such risks include the potential for the global carbon market to duplicate the problems with speculation and asset valuation which led to the subprime mortgage crisis and in turn triggered the current global financial and economic crisis across the world. This would further undermine the effectiveness of carbon trading as a mechanism for delivering emissions reductions.





Stock

This report

The purpose of this report is to explore these concerns with carbon trading as a tool for tackling greenhouse gas emissions. Our criteria for evaluation are simple: we judge the mechanism on the basis of whether it will deliver the emissions reductions we need to avoid dangerous climate change in a just and equitable way. We also look at the alternative mechanisms and policy tools that are available for bringing down greenhouse gas emissions. Based on this analysis we recommend the most suitable policy tools for governments to deploy in the face of the immense task that is responding to the challenge of climate change.

Our analysis applies primarily to the experience of developed countries as the location for the majority of current and proposed emissions trading systems. We also look at proposals for the expansion of trading to developing countries. Finally, we consider how policies adopted by developed countries must also address global inequalities between the global North and the global South, and the economic relationships and processes that serve to perpetuate those inequalities and undermine the ability of developing countries to take action on climate change and adapt to its impacts.

CARBON TRADING – THE BASICS

What is carbon trading?

Carbon trading is the buying and selling of a new, artificially-created commodity – the right to emit carbon dioxide. Unlike trading in other commodities like crude oil or bananas, carbon trading is not a voluntary exchange between producers and those who want to consume or sell on the goods. Instead, it results from action by governments to create this new commodity – the right to emit carbon – and then to limit the availability of this right in order to create scarcity and therefore a market for it.

What is the purpose of carbon trading?

Carbon trading is one of a number of different approaches that have been developed and adopted by governments as a means of controlling the amount of carbon dioxide that is emitted into the atmosphere and reducing this amount over time. It is based on the broader approach, purportedly to control the emission of pollutants, known as ‘cap and trade’.

What type of tool is cap and trade?

Cap and trade is often referred to as a market-based mechanism and contrasted with a different set of tools available to governments to influence behaviours, those which come under the umbrella of direct regulation or standard setting. However, this contrasting of market-based and non-market-based approaches is sometimes unhelpful. It ignores the fact that market mechanisms do not operate in a vacuum. Instead, they always take place in a social and economic environment underpinned

by various government laws and regulations and often require these laws in order to be effective. Carbon trading is a case in point. Carbon markets are directly created by government regulation.

Perhaps a more useful distinction for the purposes of this report is that between direct and indirect mechanisms. Carbon trading can be classed as an indirect tool as it is supposed to achieve its purpose of reducing emissions indirectly by affecting the price of those emissions. This in turn affects the behaviour of ‘actors’ in the market, ie those responsible for producing the emissions, by creating an incentive for them to save money by reducing their emissions and hence change their behaviour. In contrast, government regulation and standard setting are direct interventions to change behaviour, not reliant on intermediate mechanisms such as prices. Taxation is an indirect mechanism as it aims to change behaviour through affecting the price of a good, service or activity. However, it is arguably less indirect than trading as governments fix the price with a tax whereas with trading the price is determined by the market.

How does carbon trading work?

The basic model of an emissions trading scheme (ETS) works as follows:

1. Setting a cap: The government sets a mandatory cap on the overall quantity of CO₂ emissions that is allowed for a portion of the economy, eg the power sector. As the purpose of carbon trading is to reduce emissions, the quantity of emissions under the cap should be lower than historical emissions for that sector of the economy.

CARBON TRADING IS THE BUYING AND SELLING OF A NEW, ARTIFICIALLY-CREATED COMMODITY – THE RIGHT TO EMIT CARBON DIOXIDE.

2. Allocating allowances: The overall quantity of emissions under the cap is then divided up between the emitters (eg the different power stations), and each of these emitters receives a permit for an allocated allowance of emissions which they are not allowed to exceed. The permits are distributed to the emitters covered by the scheme either at a cost – through auctioning – or for free.

3. Trading allowances: Some of the emitters will find it easier than others to reduce their emissions. A cap and trade system allows for some flexibility about where the reductions are made by allowing permits to be tradable. As a result emitters who can make reductions more easily and cheaply and who therefore don’t need to use up their entire allowance can sell what remains of it to other emitters who find it harder and more expensive to bring down their emissions.

In reality, although it has been around for less than twenty years, carbon trading is far more complex than the simple buying and selling of permits under an emissions trading scheme. The three other notable features central to carbon trading as it now occurs are the use of offsetting; the use of financial instruments or derivatives; and the actors in the carbon markets, ie the people and institutions who participate in them.

Offsetting

In all existing national and international carbon trading schemes, emitters are allowed not only to trade in permits

THE INCLUSION OF OFFSETTING IN EMISSIONS TRADING SCHEMES MEANS THAT THE CAP ON EMISSIONS SET BY THE SCHEME IS OF LITTLE CONSEQUENCE. EMITTERS CAN PRODUCE MORE EMISSIONS THAN THEIR PERMITS ALLOW BY PURCHASING OFFSET CREDITS.

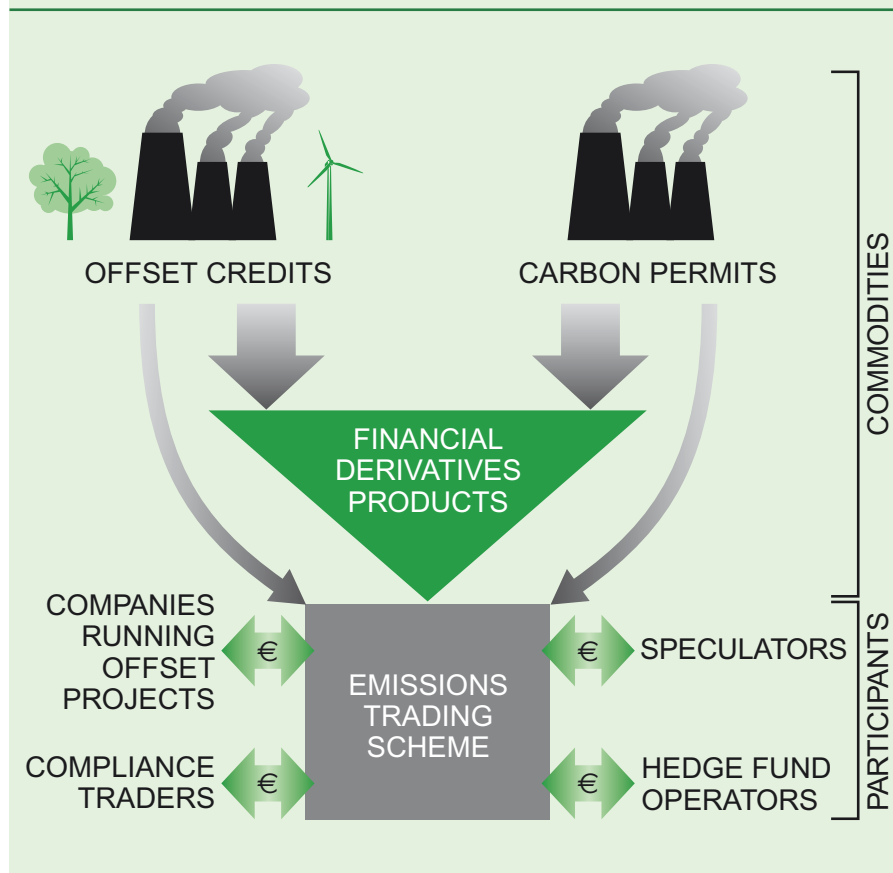
amongst themselves, they are also allowed to comply with their emissions reduction obligations by 'offsetting' some of their emissions, ie by paying for emissions reductions to take place elsewhere, outside of the sector of the economy covered by the cap, and usually outside of the country.

Most offset projects are located in developing countries, and they include a wide variety of activities ostensibly aimed at reducing, avoiding or sequestering greenhouse gas emissions. They include renewable energy projects ranging from small-scale wind and solar projects to mega-dams, energy efficiency projects, clean-up projects which are supposed to deliver reductions in emissions from highly-polluting industries, and forestry projects.

Under emissions trading schemes which allow offsetting, companies which produce carbon emissions can purchase credits generated from offset projects in amounts supposedly equivalent to the emissions that they wish to offset. These emissions then don't count towards their overall allowance. The inclusion of offsetting in emissions trading schemes therefore means that the cap on emissions set by the scheme is of little consequence. Emitters can produce more emissions than their permits allow by purchasing offset credits.

There are also a great many

FIGURE 1: HOW AN EMISSIONS TRADING SCHEME WORKS



problems associated with offsetting, including social and environmental problems linked with individual projects such as the displacement of communities, and the undermining of efforts to reduce greenhouse gas emissions globally. These are explored in detail later in Section 3.

Financial derivatives

As with other commodities markets, emissions markets are also characterised by a variety of transactions more complex than the straightforward buying and selling of emissions permits and credits. Carbon trading involves a range of financial instruments or derivatives. The immediate buying and selling

of carbon allowances and credits between companies and in return for cash is known as 'spot trading'. This is accompanied in carbon markets by other types of more complex transactions, including futures, forward contracts and options contracts.¹⁶ These are derivatives, ie financial instruments whose value is derived from the value of another, underlying asset.¹⁷ In the carbon markets, such instruments are essentially promises to deliver a certain quantity of carbon permits or credits at a certain price at a certain date and time. The purpose of these hedging instruments is to allow companies to reduce their exposure to risks associated with their need to purchase carbon permits

and credits, for example the risk of significant price increases at the time when they need to make a purchase.

Who are the actors in the carbon market?

A wide range of companies and business are required to participate in the carbon markets because their emissions are covered under emissions trading schemes. These include utility companies and the owners of heavily-polluting industries. In the markets they are known as 'compliance traders'. However, trading for compliance purposes is actually only a small proportion of the overall volume of permits and credits traded. Most carbon permits and credits are held by people and organisations whose participation in the markets is solely for the purpose of making money via buying and selling, ie speculation. These include large financial institutions, investment funds and brokers, as well as trading desks set up by compliance traders with the objective of making money from additional trading activity. For example, there are at present 80 carbon investment funds in existence worldwide. They manage funds in excess of \$13 billion, finance offset projects and buy carbon credits and permits. Carbon exchanges operate both in Europe and the US and transact millions of dollars-worth of business each day.¹⁸

Where does carbon trading take place?

Emissions trading schemes are already operating or planned in 35 countries around the world.¹⁹ The European Union Emissions Trading Scheme (EU ETS) is the world's

largest carbon market. It includes more than 80 per cent of the world's carbon credits and accounted for approximately three quarters of the value of carbon traded globally in 2008.²⁰ See below for a more detailed explanation of the evolution and operation of the EU ETS.

In the United States, a small trading scheme is currently in operation. The Regional Greenhouse Gas Initiative (RGGI) covers a group of ten states in the northeast of the country. However, a far bigger nation-wide carbon trading scheme is envisaged in legislation under consideration. The Waxman-Markey American Clean Energy and Security Act, passed by the US House of Representatives in June 2009, mandates a gradual phase-in of a cap and trade scheme which would eventually cover 84.5 per cent of the United States' total greenhouse gas emissions.²¹ Emissions trading schemes are also under consideration or in the process of being established in Switzerland, Mexico, Canada, Australia, New Zealand, China and Japan.

The global framework for carbon trading

Emissions trading schemes such as the EU ETS and others under development are underpinned by provisions in the Kyoto Protocol, the international treaty signed in 1997 which supplements the United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol – which came into effect in 2005 – established legally binding measures for the reduction of greenhouse gas emissions for most²² developed countries. The Protocol includes three flexible mechanisms, the supposed purpose of which is

to provide flexibility for countries in how they comply with their emissions reduction commitments under the treaty. As is explored later in the report, the effect of these mechanisms is to provide an escape hatch for developed or Annex I countries from their compliance obligations under the Treaty.

- **International Emissions Trading (IET)** is a gigantic cap and trade scheme covering all of the Annex I countries bound by the Kyoto Protocol but with a great many loopholes. Under the Protocol, countries are allocated a certain quantity of carbon emissions which they cannot exceed. For each tonne of CO₂ that a country is allowed to emit, it is allocated a permit known as an Assigned Amount Unit. Under the International Emissions Trading provision in the Kyoto Protocol, countries are allowed to trade Assigned Amount Units between themselves. This means that countries that are more successful in bringing down their carbon emissions and therefore don't use up their full allowance of Assigned Amount Units can sell what remains to other countries that are less successful at reducing their emissions and would otherwise exceed their allowance. If a country does exceed its allowance, then under the Kyoto Protocol it is supposed to make up the difference in the next compliance period, and pay an additional penalty of 30 per cent. We are in the first commitment period of the Kyoto Protocol covering 2008-2012. Targets for the next commitment period are due to be agreed at the UNFCCC Fifteenth Conference of the Parties (COP 15) in Copenhagen in December 2009.

The other two flexible mechanisms under the Kyoto Protocol allow for countries with binding emissions

EUROPEAN UNION EMISSIONS TRADING SCHEME (EU ETS)

The European Union Emissions Trading Scheme (EU ETS) is the world's largest carbon trading market and the first mandatory international carbon trading scheme. It covers over 11,500 energy-intensive installations across the European Union, including combustion plants, oil refineries, coke ovens, iron and steel plants and factories making cement, glass, lime, brick, ceramics, pulp and paper.²³ Together these installations represent approximately 42 per cent of EU emissions.²⁴ In total, the EU generates around 4 billion tonnes of CO₂ a year, of which sectors participating in the EU ETS are responsible for 2.15 billion tonnes.

The stated aim of the EU ETS is to help EU member states achieve compliance with their commitments under the Kyoto Protocol. The EU signed the treaty as a single body and agreed an overall eight per cent reduction on 1990 level emissions over the first commitment period of the Protocol covering 2008-2012. Responsibility for achieving this target is divided unequally between European member states under the Burden Sharing Agreement. Under this agreement, each EU member state has an allocated number of Assigned Amount Units (AAUs), each of which represent the right to emit one tonne of CO₂e (CO₂ or equivalent).

The EU ETS was introduced in

January 2005. Under the system, each member state converts a proportion of its AAUs to permits tradable under the scheme, known as EU allowances (EUAs) and allocates these to energy-intensive businesses through a National Allocation Plan agreed with the European Commission.

Every year, at the end of March, installations covered by the EU ETS must have their emissions verified and then surrender a number of EUAs or Certified Emissions Reductions (CERs) and JI credits (offset credits created under the UN flexible mechanisms known as the Clean Development Mechanism and Joint Implementation, respectively) considered to be equivalent to their actual emissions over the course of the year. In practice there are big problems in verifying whether CERs equate to actual emissions reductions as explored later in this report.

If an installation has emitted less than its allocation it can sell excess EUAs or bank them for future use. Similarly, installations which emit more than their allocated number of emissions must purchase EUAs or CERs equivalent to their excess emissions on the carbon market.

The EU ETS is overseen by a competent authority in each EU member state, who has responsibility for verifying the emissions produced

by each installation covered by the scheme within their territory. This is done using independent auditors referred to as Independent Accredited Verifiers (IAVs), who review and verify the emissions records for each installation and confirm the amount of CO₂ emitted.²⁵

The EU ETS operates in phases: Phase I covered the period 2005-2007; we are currently in Phase II which runs from 2008-2012; and Phase III is planned for 2013 onwards. The top seven per cent of installations covered by the EU ETS account for 60 per cent of emissions covered²⁶ and it is estimated that 55 per cent of allowances are held by the heat and power sector.²⁷ According to the UK Financial Services Authority, the average daily volume in Carbon Financial Instrument (CFI) futures and options contracts traded on the European Climate Exchange was 7.6 million tonnes in January 2008, an increase of 190 per cent compared to January 2007 – evidence of strong market growth in the EU ETS. Record days of trading volumes were experienced that month with volumes reaching 14,934 contracts, representing nearly 15 million tonnes of underlying CO₂e.²⁸ Overall a total of 3.1 billion EUAs were bought and sold on the EU ETS in 2008.²⁹ The total value of the EU ETS for 2008 was estimated at €67 billion (US\$90 billion).³⁰

reductions targets under the treaty to meet part of these targets by paying for projects which reduce emissions outside of their territories, ie to offset their emissions reductions.

- The **Clean Development Mechanism (CDM)** allows developed countries with binding targets under the Kyoto Protocol to buy credits from developing countries which do not have binding emissions reduction targets but which are implementing projects which supposedly reduce, avoid or sequester CO₂ emissions. For every one tonne of CO₂ abated through a CDM project, a developing country is awarded a Certified Emissions Reduction (CER) credit. CERs are interchangeable with AAUs, so Annex I countries can purchase them to comply with their emissions reduction targets. As described above, CERs are also tradable in emissions trading schemes such as the EU ETS and RGGI. Companies can meet their own obligations for reducing emissions under these schemes by purchasing CERs. The CDM is currently the main mechanism which links developing countries to carbon markets.

- Finally, **Joint Implementation (JI)** is the other scheme which allows for the offsetting of countries' emissions reduction commitments. Unlike CDM, JI covers offsetting projects between developed countries whose emissions are capped under the Kyoto Protocol. Hence countries with a binding cap can purchase credits from projects to reduce emissions in other countries with a binding cap. Unlike the CDM, which is the second biggest carbon market after the EU ETS, use of the JI scheme is so far very limited.³¹

The Kyoto Protocol sets no upper limits on the proportion of their emissions reductions obligations

THE GLOBAL CARBON MARKET HAS ROUGHLY DOUBLED IN SIZE EVERY YEAR SINCE 2005. BY 2008 IT HAD REACHED US\$126 BILLION, OF WHICH APPROXIMATELY US\$92 BILLION CONSISTED OF TRANSACTIONS OF ALLOWANCES AND DERIVATIVES UNDER THE EU ETS.

that developed countries can offset. While the Protocol does refer to this question in a supplementary principle, this is not likely to have legal enforceability and no specific limit is given. As a result it is up to countries themselves to decide what proportion of their emissions cuts are shifted to offsetting, and most developed countries have chosen to make this proportion a large one. As is explored in more detail later, the EU is planning to offset around half of its emissions reductions. In other developed countries this proportion is even higher, with Australia proposing to meet almost all of its reduction obligations through offsetting. The US Waxman-Markey American Clean Energy and Security Act of 2009 allows for up to 1 billion tonnes of domestic offsets in the proposed cap and trade scheme, and an additional 1 billion tonnes of international offsets.³² Early analysis of the legislation suggests that these offset provisions could allow emissions in US economic sectors supposedly capped under the cap and trade scheme to rise by nine per cent up to 2030.³³

The global carbon market

The global carbon market has roughly doubled in size every year since 2005. By 2008 it had reached US\$126 billion, of which approximately US\$92 billion consisted of transactions of

allowances and derivatives under the EU ETS.³⁴ While this is still relatively small compared to other commodity and financial markets – the global financial derivatives market reached a nominal value in excess of five hundred trillion dollars in 2007³⁵ – it is expected that the global carbon market will continue to expand rapidly, especially if the United States adopts a nation-wide carbon trading scheme as envisaged in the Waxman-Markey Act. US Commodities Future Trading Commissioner Bart Chilton has stated that if the United States adopts the emissions trading scheme proposed in the new legislation, then carbon derivatives are likely to become “the biggest of any derivatives product in the next four to five years.”³⁶ Similarly, global financial services firm Merrill Lynch has predicted that the global carbon market could be “one of the fastest-growing markets ever, with volumes comparable to credit derivatives inside of a decade.”³⁷ Some predictions put the global market value at US\$3.1 trillion per year by 2020.³⁸

This predicted growth of the global carbon market is linked to, and to a large extent reliant on, the increased use of offsetting by developed countries to meet their emissions reduction targets. The adoption of the Waxman-Markey Act in the United States will create an offset market approximately 10 times larger than that under the Clean Development Mechanism. Similarly, proposals on the table in the UNFCCC for sectoral crediting and sectoral trading, explored later in this report (see box explaining these mechanisms below), will dwarf current volumes of offset reductions.

THE EU'S VISION IS TO ESTABLISH AND LINK EMISSIONS TRADING SCHEMES TO CREATE A GLOBAL EMISSIONS TRADING SYSTEM COVERING NOT ONLY DEVELOPED COUNTRIES BUT ALSO ADVANCED DEVELOPING COUNTRIES.

The EU vision: a global emissions trading system

A number of countries are voluntarily exploring and developing national emissions trading schemes, and this growth in individual schemes is likely to be one of the key drivers behind the expansion of the carbon market overall. Meanwhile, the European Union is playing an active role in promoting the expansion of emissions trading schemes globally, not only amongst developed countries whose emissions are capped under the Kyoto Protocol, but also amongst developing countries. The European Commission's January 2009 Communication setting out its vision and aspirations for a new global climate deal in Copenhagen in December 2009 states that: "The EU should help interested developing countries gain experience in emissions trading, in particular to set up sound governance structures and strong domestic institutions and to boost their capacity to monitor and report emissions."³⁹ It also asserts that the EU should "propose to enter into bilateral partnerships with the US and with other developed countries to share experience on designing domestic emissions trading systems and to facilitate the creation of a robust carbon market covering the countries in the Organisation for Economic Co-operation and Development by 2015. This market

should be further extended to economically more advanced developing countries by 2020."⁴⁸

The EU's vision is to establish and link emissions trading schemes to create a global emissions trading system covering not only developed countries but also advanced developing countries. It has been heavily promoting the extension of carbon market mechanisms in the negotiations running up to the critical global climate talks in Copenhagen in December 2009. For example, the European Union submission to the UNFCCC negotiations in April 2009⁴⁹ pushed for the inclusion in the negotiating text of the concepts of sectoral crediting and sectoral trading (see box below).

Among EU member states, the United Kingdom is one of the lead proponents of this approach. The British Government is actively pushing other EU member states and other governments which are party to the UNFCCC negotiations to accept this vision. The UK Government is also filling in the gaps in analysis and understanding of how this vision could work in practice.

Britain's commitment to the expansion of the global carbon market as a means of bringing down emissions globally was first outlined in 2007 in a keynote speech by then Chancellor of the Exchequer Gordon Brown:

"I believe there is much more we can do, not after 2012 but now, building on initiatives on which the UK has already led, and using many levers for change. First, by creating new markets... My ambition is to build a global carbon market, founded on the EU Emissions Trading Scheme and centred in London. Today worth just \$9

billion, emissions trading could grow to between \$50 and \$100 billion."⁵⁰

In July 2009, the British Government held a conference to promote this vision. It was attended by over 100 participants representing governments, investment houses, traders, energy companies, major industries, international institutions and non-governmental organisations. The conference focused on the future development of the global carbon market and launched a report by the Prime Minister's Special Representative on Carbon Trading, Mark Lazarowicz MP.

"MY AMBITION IS TO BUILD A GLOBAL CARBON MARKET, FOUNDED ON THE EU EMISSIONS TRADING SCHEME AND CENTRED IN LONDON. TODAY WORTH JUST \$9 BILLION, EMISSIONS TRADING COULD GROW TO BETWEEN \$50 AND \$100 BILLION."
GORDON BROWN, 2007

The Lazarowicz report⁴³ was commissioned by the Prime Minister to examine the role of cap and trade systems internationally and the main challenges as they develop. The report asserts that global carbon trading should play a central role in delivering emissions reductions. It advocates the linking of emissions trading schemes to form a global network of carbon trading. The report sets out a roadmap for the creation of a dual-level system comprising the same national emissions targets for governments as under the Kyoto Protocol but expanded to cover advanced developing countries, combined with emitter-level emissions trading schemes covering businesses and other major sources of emissions

THE LAZAROWICZ REPORT WAS COMMISSIONED BY THE PRIME MINISTER TO EXAMINE THE ROLE OF CAP AND TRADE SYSTEMS INTERNATIONALLY AND THE MAIN CHALLENGES AS THEY DEVELOP. THE REPORT ASSERTS THAT GLOBAL CARBON TRADING SHOULD PLAY A CENTRAL ROLE IN DELIVERING EMISSIONS REDUCTIONS.

in individual countries. These emitter-level schemes are then linked up and expanded to form a global network: “Effectively a global carbon market, this network would allow emitters in one country to trade allowances with emitters in other countries without loss of sovereignty.”⁴⁴ This dual-level system is deemed preferable to a single global emissions trading system with centralised governance, which Lazarowicz argues would reduce the sovereignty of participating governments over their domestic policies and would also be difficult to negotiate and agree on between governments.

Key milestones on this roadmap include:

- The establishment of caps on emissions from all developed countries by 2013
- The linking of the EU ETS with the newly established US trading scheme by 2015
- Capacity building for developing countries combined with the expansion of sectoral crediting mechanisms and their eventual replacement of the Clean Development Mechanism
- The establishment of sectoral trading in more advanced developing countries by 2020.

The Lazarowicz report is highly significant, not only because of

PROPOSALS FOR SECTORAL TRADING AND SECTORAL CREDITING MECHANISMS

Sectoral trading

Proposals for sectoral trading would see the extension of national-level emissions reduction targets to particular economic sectors in developing countries.

Under a sectoral trading scheme, a target would be set lower than the ‘business as usual’ emissions trajectory for the economic sector in question, for example the power sector.

Emissions allowances would then be allocated to the government of the country up to the level of the target.

At the end of a given period of time, if the government had reduced emissions in the economic sector more than the set target, it would be able to sell any surplus allowances on the carbon market.

Failure to achieve a target would require the government to purchase additional allowances from the market.

It would be up to the government itself to decide how to implement the target domestically, ie whether to achieve the emissions reductions in the sector in question through emissions trading, taxation, subsidies or regulation.

Sectoral crediting

Under sectoral crediting proposals, a ‘baseline’ level of emissions for a particular sector in a country would be set below the ‘business as usual’ emissions trajectory for that sector.

Reductions of emissions below the business-as-usual level but above the baseline would be referred to as ‘own action’ and the government would not receive anything for this.

However, reductions achieved below the baseline would be rewarded with credits which could then be traded on the carbon market. These credits would be issued at the end of a defined period.

There would be no obligation for governments to purchase carbon credits from elsewhere if they didn’t achieve their target. For this reason this mechanism is sometimes referred to as ‘sector no lose targets’.

Figure 2

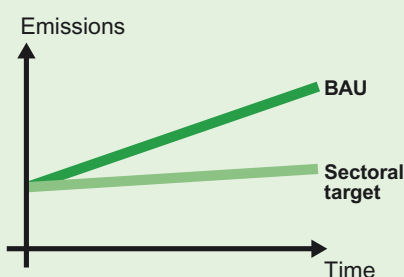
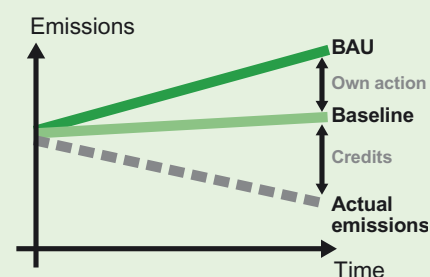


Figure 3



Source: Global Carbon Trading: A framework for reducing emissions, Mark Lazarowicz, 2009

its ardent promotion of emissions trading as a mechanism of choice for reducing emissions of greenhouse gases globally but also because it argues for the participation of developing countries in carbon trading. Whilst it recognises some limitations of emissions trading and states that individual countries should use a range of policy tools that are most appropriate for their own circumstances, the report concludes that emissions trading schemes should play a central role in developed countries and, in future, in advanced developing countries.

Why carbon trading and not something else?

Why are the UK and the EU placing such emphasis on emissions trading mechanisms relative to other approaches available to help governments bring down emissions? Four rationales form the core of the case for carbon trading made by key proponents, including the UK Government and the European Commission. They are as follows:

- **Argument one: Carbon trading delivers a guaranteed level of emissions reductions**

Proponents of carbon trading argue that by setting an absolute cap on emissions, trading provides guaranteed levels of emissions reductions, and hence is a superior instrument in the struggle to keep global average temperature increases below the critical threshold. While other instruments such as carbon taxes can also deliver emissions reductions, advocates of carbon trading assert that it is the only instrument that can guarantee emissions reductions at a defined level.

- **Argument two: Carbon trading delivers emissions reductions at the lowest cost, and therefore more cuts overall**

Proponents argue that carbon trading allows emissions cuts to be made in the most cost-effective way because the flexibility provided by the trading allows for the emissions reductions to be made where it is cheapest to do so, ie emitters that find it easy and therefore cheaper to reduce their emissions will do so, and then sell their excess allowances to emitters that find it harder and thus more expensive. It is argued that the overall effect is a lower aggregate cost for emissions reductions across the emitters covered by the scheme. This supposed advantage of lower abatement costs is also argued to work when different emissions trading schemes are joined together. The Lazarowicz report argues that linking of emissions trading schemes can further reduce the costs of emissions reductions through international carbon trading. It points to modelling to back up the assertion that: "Global carbon trading could reduce global abatement costs by up to 70 per cent in 2020 compared with countries and emitters meeting all their targets domestically."⁴⁵

- **Argument three: Carbon trading drives investment in low-carbon technologies**

Linked to argument two, supporters of carbon trading maintain that, by providing a carbon price signal, it harnesses the market to reward low-carbon businesses and provide incentives for other emitters to invest in low-carbon technologies in order to reduce the carbon footprint of their operations. It is argued that carbon trading makes low-carbon technologies cost competitive

compared to more fossil fuel-intensive ones, because it incentivises emitters to invest in the former and gradually shift away from the latter.

- **Argument four: Carbon trading provides finance for mitigation in developing countries**

Finally, carbon trading is increasingly held up as having major potential as a tool for delivering finance to support emissions reductions in developing countries. Very high expectations are being placed on offsetting through the carbon markets to deliver finance flows for climate mitigation from the private sector in developed countries to governments in developing countries. The UNFCCC estimates that by 2020 offsetting could yield up to US\$40.8 billion in finance for developing-country mitigation.⁴⁶ In addition, it is argued that auctioning of permits to firms covered by emissions trading schemes rather than giving them out for free could provide a key revenue stream for governments to use towards mitigation finance for developing countries. EU member states have expressed a willingness to use part of their auction revenues to support mitigation and adaption in developing countries.⁴⁷

The following sections in this report examine whether carbon trading is tackling carbon emissions globally. We start with whether those arguments in favour of carbon trading as a priority mechanism are grounded in evidence.

ARE CARBON MARKETS WORKING?

PART A: Comparing carbon markets against their own criteria

1. Reductions in greenhouse gas emissions through carbon trading – the real picture

There is a huge gap between the claims made for carbon trading and the reality: emissions cuts delivered through carbon trading are simply not as high as its proponents claim. The argument that trading is a good way of guaranteeing cuts is simply not borne out by the facts.

The EU ETS

The European Union Emissions Trading Scheme is the largest active scheme in the world. It is a key indicator of the likely success of emissions trading mechanisms in delivering guaranteed emissions cuts. Under the Kyoto Protocol, the original 15 EU member states are expected to reduce their greenhouse gas emissions by eight per cent compared to 1990 levels by 2012. In reality, if the UK and Germany are excluded, emissions in the EU15 increased by 12 per cent between 1990 and 2005,⁴⁸ and have not fared much better since. This is despite the creation of the EU ETS with the explicit objective of helping member states comply with their Kyoto commitments. In fact EU performance over the first Kyoto commitment period (2008-2012) has been no different from US performance so far, despite the EU having an emissions trading scheme when the United States does not.⁴⁹

Over the period 2005-2007 (covering Phase I of the EU ETS), emissions in the sectors covered

by the scheme rose by about one per cent per year when the caps were supposed to have resulted in an overall decline in emissions from sources covered by the scheme.⁵⁰ There was a decline in emissions under the EU ETS in 2008.⁵¹ However, while the European Commission claims that measures taken by installations in response to the increased price of carbon played a significant role in delivering this decrease, the economic contraction in Europe resulting from the global economic downturn is also acknowledged to have been a significant factor in bringing about the decline.

The failure of the EU ETS to deliver emissions reductions in the industrial sectors covered by the scheme is largely attributed to the overall cap on emissions being set too high, resulting in the over-allocation of permits to industrial sectors covered by the scheme. Phase I of the scheme is widely deemed to have been a complete failure with over-allocation leading to a collapse in the price of EUAs – the permits traded under the scheme. With price being the main driver for emissions reductions under a trading scheme, a collapse in the price of permits eliminates all incentives for firms covered by the scheme to reduce their emissions.

Despite a lowering of the cap in Phase II, permits have still been over-allocated. Combined with the recent contraction of European industry, this resulted in the price of EU allowances falling to record lows for Phase II, down to €8 on 12 February 2009 – a fall of more than 70 per cent from the peak on 1 July 2008.⁵²

Analysis by the campaigning organisation Sandbag has revealed that European industry covered by

the EU ETS is likely to have nearly 400 million tonnes worth of surplus permits in Phase II.⁵³ There may also be an estimated surplus of more than 300 million permits in the New Entrants Reserve which could be added to the market. As a result, a total of 700 million surplus permits could be available in Phase II of the scheme which can be rolled over in Phase III. Sandbag describes these surplus permits as “hot air” in the system because firms can buy and use them without making any effort to cut their emissions. Combined with the additional safety valve provided to companies by way of the inclusion of offset credits in the EU ETS, the net effect of the over-allocation of permits could be to “allow EU companies to stand still on cutting domestic emissions for the next seven years,”⁵⁴ hence providing zero incentive for emissions reductions between now and 2015.

The EU ETS scheme has clearly failed to provide adequate incentives for European firms to reduce their emissions in Phase I; Phase II is performing poorly and is likely to fail. Yet many proponents of carbon trading still hold up the scheme as justification for the expansion of emissions trading schemes, and a model for the construction of such schemes elsewhere. The Lazarowicz report significantly underplays the implications of the EU ETS failures, stating only that a key lesson from current carbon market instruments is that weak targets reduce and delay environmental effectiveness. In reality, the EU ETS has demonstrated that weak targets completely eliminate environmental effectiveness. However, in spite of the major failings demonstrated in Phases I and II of the scheme, the report concludes that:

“The EU Emissions Trading System and the Regional Greenhouse Gas Initiative in US states have provided blueprints for how governments can effectively devolve emissions reduction effort to businesses and other emitters.”⁵⁵

The only evidence the report can muster in support of this assertion is a survey of industry undertaken by the National Audit Office (NAO) in which approximately 64 per cent of companies reported that the EU ETS had led to emissions reductions in their operations, and 34 per cent of respondents said that reducing emissions was now taken more seriously as a boardroom issue.⁵⁶ However, the same NAO survey also revealed that, according to the companies surveyed, falling output was the most common cause of emissions being lower than allocations under the scheme. Furthermore, the NAO report itself provides data indicating that Phase I of the EU ETS may not have resulted in any reductions in emissions from UK installations participating in the EU ETS,⁵⁷ and furthermore that Phase II of the EU ETS may also not result in significant emissions reductions.

The clear failings of the EU ETS scheme and the significant prospects of continuing failures raise the question of why it continues to be considered as a useful tool for delivering emissions reductions by European policy-makers. This issue will be addressed in Section 4.

Sulphur dioxide trading – the US Acid Rain Programme

The other piece of evidence frequently cited in support of emissions trading is the experience of the United States trading scheme in sulphur dioxide (one

of the gases responsible for acid rain). The scheme was established in the US under its Acid Rain Programme in the early 1990s as a result of the US Clean Air Act Amendments in 1990. Its purpose was to make it cheaper for industry to reduce SO₂ emissions. According to a progress report by the US environmental regulator the Environmental Protection Agency, the scheme succeeded in bringing down SO₂ emissions by more than 5 million tons from 1990 levels in the first 10 years of its operation (1994-2004), or approximately 34 per cent of total emissions from the power sector. It also resulted in nearly 100 per cent compliance through “rigorous emissions monitoring, allowance tracking, and an automatic, easily understood penalty system for noncompliance.”⁵⁸

However, a key point often excluded from this version of the story is the fact that the US scheme was much less successful at reducing SO₂ pollution than equivalent regulations elsewhere: “SO₂ emissions in the US had been reduced by 43.1 per cent by the end of 2007, but over the same period 25 members of the European Union saw a decrease in emissions of 71 per cent. These reductions were achieved through regulation, rather than a cap-and-trade scheme.”⁵⁹

Furthermore, additional analysis suggests that the reductions in SO₂ cannot be attributed to the trading scheme alone. According to the United Nations: “The low cost made itself apparent quite early, at a time when the volume of emissions trading was quite small. Several other events also played important parts in driving down the costs. Just before trading began, a sharp reduction in railroad freight rates made it affordable to bring low-sulphur coal from Wyoming,

replacing high-sulphur coal from the closer Appalachian coalfields, to Midwestern power plants. Some State regulations required even greater sulphur reduction than that stipulated by the national law, so it took no extra effort for power plants in those States to comply with the new national standard. At the same time, prices were declining for scrubbers, the pollution control devices that remove sulphur emissions. In this context, the emissions trading system may have made some contribution to lowering costs, but it operated on a field tilted in its favour. Without all the helpful coincidences, sulphur emissions trading would have looked much less successful.”⁶⁰

Critics of carbon trading also point to the major differences between the scale and scope of the US SO₂ scheme, and the types of emissions trading now being advanced as a means of bringing down greenhouse gas emissions globally. First and foremost, the SO₂ scheme covered only one set of sources – power plants – and all sources were bound by a single legislative framework. Further, the scheme did not cover sinks of SO₂ outside of the system, ie it did not allow for the use of offsets.

2. The price signal – driving innovation or locking in high-carbon infrastructure?

It is clear from the above that, based on the record of carbon markets, the arguments in support of carbon trading as a mechanism for delivering a guaranteed level of emissions reductions do not stand up under close scrutiny. The largest emissions trading scheme in existence, the EU ETS, has largely failed in this regard. And while the US SO₂ scheme saw some successes, these were not fully attributable to the trading scheme alone. Nor is that model easily translatable to the task now envisaged by proponents of carbon trading as a mechanism for driving down greenhouse gas emissions globally.

Claims that carbon trading is effective in creating incentives for firms to invest in low-carbon technologies are also increasingly being challenged. As set out in Section 2, there are two further arguments put forward in support of carbon trading over other abatement mechanisms: that it reduces emissions in the most cost-effective way for the economy as a whole; and that in doing so it harnesses the market to reward low-carbon businesses and provide incentives for other emitters to invest in low-carbon technologies in order to reduce their carbon footprints.

In practice it is increasingly argued that the price signals needed to stimulate investment in low-carbon technologies are not being provided by carbon trading schemes and nor are they likely to in the future.⁶¹ But there's a bigger problem. Carbon trading, and specifically its emphasis on low-cost options, is likely to put off the major economic adjustments that

need to be made urgently. It is likely to lock participating economies in both the developed and developing world into high-carbon infrastructure.

Achieving a high enough price

Cheap available alternatives to fossil fuels don't currently exist. The carbon price needed to stimulate investment in low-carbon technology or make current available alternatives such as wind and solar energy truly competitive has been estimated to be much higher than those currently being delivered by the EU ETS. At the time of writing the going rate for a permit to emit one tonne of carbon under the EU ETS (the price of one EU Allowance) was approximately €13.⁶² This is not much better than the €8 that the permits were fetching when the recession first hit in early 2009. The highest price that EUAs have reached so far was around €30 in July 2008.⁶³ In contrast, while onshore renewable energy becomes competitive with dirty coal at around US\$50 per tonne,⁶⁴ some estimates put the level of carbon price necessary to make low-carbon technology competitive as high as €500 per tonne. Similarly, it has been argued that a carbon price of €100-300 per tonne would have insufficient impact on reducing levels of emissions growth in the aviation sector.⁶⁵

Only very big increases in the price of carbon are likely to induce the kind of changes in behaviour that proponents of carbon trading suggest will result from the use of this kind of mechanism. A higher carbon price in the EU ETS could be achieved by significantly lowering the cap on emissions, and this kind of reform is advocated by a number of pressure groups as a means of improving

“MANY ECONOMISTS, LEGAL SCHOLARS, AND PRACTICING LAWYERS REPEAT THIS OBVIOUSLY INCOMPLETE ARGUMENT [THAT CARBON TRADING DRIVES TECHNOLOGICAL INNOVATION] OVER AND OVER AGAIN AS GOSPEL.”
PROFESSOR OF LAW DAVID DRIESEN

the effectiveness of the scheme in bringing down emissions.

However, it is highly questionable whether the kind of major price increases needed to stimulate investment by companies in low-carbon technology would be politically acceptable without prior government intervention to bring down the price of the alternatives.

On the other hand, the politically acceptable alternative under a carbon trading scheme, of bringing down the cap more slowly, is likely to fail on the criterion of bringing down emissions fast enough. It is also unlikely to produce a price signal high enough to drive major advances in technology needed to ensure a peak and decline of global greenhouse gas emissions by 2015.

Saving the worst till last

Even if alternative technologies were more cheaply available, there are additional problems with the incentive structure provided by carbon trading: even with a high enough carbon price firms won't necessarily switch to using these alternative technologies. On the contrary, critics of carbon trading argued that by incentivising firms to focus on the lowest cost adjustments, carbon trading is actually locking economies into high-carbon infrastructure.

The failure to understand this dynamic has been attributed to a major error in the economic theory underlying the assumption that carbon trading drives technological innovation. According to American Professor of Law David Driesen, “Many economists, legal scholars, and practicing lawyers repeat this obviously incomplete argument [that carbon trading drives technological innovation] over and over again as gospel.”⁶⁶ Driesen highlights that this theory, like many neoclassical economic theories, is simplistic and takes into account only the sellers of credits, not the buyers: “Polluters have an incentive to make extra emission reductions under emissions trading so that they can sell credits, therefore, emissions trading stimulates innovation. This model accurately explains the situation of sellers of credits. But it is also obviously incomplete. It leaves the buyers of credits out of the picture.”⁶⁷

For Driesen, the situation is directly opposite for the buyers of credits – the highly polluting firms whose emissions exceed their allowances and for whom the adjustments to less carbon-intensive modes of production are expensive. Carbon trading makes lower-cost credits available to these firms as an alternative to the higher-cost investments that they would otherwise have to make. Hence trading removes any incentive that they have for technological innovation. Driesen concludes that there are solid reasons to suspect that an emissions trading programme does a poorer job of stimulating technological innovation than comparably designed traditional regulation.

In conclusion, carbon trading can actually prevent the types of innovation that are urgently needed in order to support decarbonisation in developed countries. Although trading provides limited incentives for

THE OVERALL EFFECT OF THE OPT-OUT PROVIDED BY CARBON TRADING IS TO PUT OFF THE VERY DIFFICULT, EXPENSIVE ADJUSTMENTS TO OUR ECONOMIC AND INDUSTRIAL INFRASTRUCTURE TO THE VERY LAST MOMENT. THIS SIGNIFICANTLY INCREASES THE RISK OF FAILURE TO KEEP GLOBAL TEMPERATURE INCREASES BELOW THE CRITICAL THRESHOLD.

firms for whom emissions reductions are low cost to invest to make those reductions, it removes incentives for firms who have to make heavy adjustments to do so by allowing them to purchase additional permits on the carbon market. It is an opt-out.

The overall effect of this is to put off the very difficult, expensive adjustments to our economic and industrial infrastructure to the very last moment. This significantly increases the risk of failure to keep global temperature increases below the critical threshold. In order to maximise our chance of keeping within this threshold, developed countries must embark immediately on the structural transformation of their economies, investing in fundamental adjustments to energy production and use. Relying on carbon trading has the opposite effect – focusing action on the cheapest adjustments first and leaving the hardest transitions for capital-intensive industries until last.⁶⁸

A similar conclusion about the weaknesses of carbon trading in stimulating investments in low-carbon innovation was reached by the UK Climate Committee in their recent report on meeting carbon budgets.

The Committee argues that “a policy of relying too much on

purchased credits in the initial years could make a stretching 2050 domestic target unachievable”. By way of example, it points out that an 80 per cent reduction by 2050 requires electricity generation to be almost entirely decarbonised by 2030.⁶⁹ Electricity generation is one of a number of industrial sectors where a major step change is needed if adequate adjustments in infrastructure are going to be made in time to deliver emissions cuts. However, the ability to buy cheap credits from other industries significantly reduces incentives on power providers to do so.

The Committee asserts that “the only situation where investments in low-carbon technology would then proceed is if investors attach significant weight to scenarios with a significantly increasing carbon price over the next decade and through the 2020s. We believe that this is currently unlikely for two reasons:

- There is a great deal of uncertainty over what the arrangements will be for determining the carbon price in the 2020s.
- It is difficult to make an investment business case around a price that is currently low but that is projected to increase significantly in 20 years time, particularly where the increase is subject to significant political risk.”⁷⁰

On the basis of these risks and uncertainties, the Committee concludes “we cannot therefore be confident that the EU ETS will deliver the required low-carbon investments for decarbonisation of the traded sector through the 2020s.”⁷¹ It then goes on to recommend that alternative options for intervention in the UK carbon and electricity markets be seriously considered.

This failure of carbon trading mechanisms to stimulate the

shift that is needed to low-carbon economic infrastructure in developed countries is increasingly widely recognised, including by industry representatives themselves. At the European Commission's European Business Summit in March 2009, Joan MacNaughton, Senior Vice President of the power company Alstom said that emissions trading and other market-based mechanisms could not achieve the shift to a low-carbon economy on their own, asserting the need for public investment in the development of technologies to help bring down carbon emissions.⁷² Others acknowledge the weaknesses of carbon markets in delivering incentives but assert this could be addressed through reforms to the EU ETS, an argument examined later in this report.

ONE OF THE CONSEQUENCES OF THE OVER-ALLOCATION OF PERMITS TO POLLUTERS COVERED BY THE EU EMISSIONS TRADING SCHEME HAS BEEN THE CREATION OF HUGE WINDFALL PROFITS FOR POLLUTERS.

Other unintended consequences

Research has revealed several other ways in which carbon trading is actually disincentivising efforts to shift to low-carbon infrastructure. One of the consequences of the over-allocation of permits to polluters covered by the EU Emissions Trading Scheme has been the creation of huge windfall profits for polluters. A study of five EU countries commissioned by WWF from Point Carbon in 2008 estimated that investors and other holders of permits under the EU ETS were likely to make between €23 billion and €63 billion over the course of Phase II of the scheme (covering 2008-2012)

on the basis that the price of carbon would be between €21 and €32.⁷³ Amongst the businesses likely to reap significant profits is the world's largest steel company ArcelorMittal, already estimated to have made approximately €2 billion in profits from the EU ETS between 2005 and 2008.⁷⁴

Through setting too low a cap on emissions, and thus over-allocating emissions permits to polluting industry, the EU ETS is providing minimal incentives for emissions reductions. It is also subsidising highly polluting industries at the expense of their low-carbon competitors.

As well as creating this direct disincentive, carbon trading has also been recognised to block other mechanisms designed to promote a more rapid switch to low-carbon infrastructure. For example, in its 2008 Renewable Energy Strategy consultation paper the UK Government openly admits that, because large-scale energy producers are covered by the EU ETS, the Government's renewables strategy has no provisions for setting large-scale energy production on a different technology path.⁷⁵

Similarly, the desire to align EU legislation on pollution from heavy industry with the EU ETS resulted in the European Commission taking steps to undermine the power of national authorities in EU member states to place limits on greenhouse gas emissions when determining environmental permits for industries. In August 2009 the Commission introduced a new provision under the Integrated Pollution Prevention and Control (IPPC) directive which would prevent national governments from setting more stringent limits on emissions from industrial plants covered by the IPPC directive than those determined by the EU ETS.⁷⁶



Stock

PART B: The other fundamental flaws

It is clear from the above that carbon trading is failing against the criteria set for it by its proponents – it is not achieving the guaranteed levels of emissions cuts promised, nor is it driving the major technological innovations that are needed to shift our economies onto more low-carbon paths. In fact its focus on low cost solutions is further locking us in to high-carbon pathways. The perverse incentives it creates are further hampering efforts to reduce emissions.

However, these issues are far from the whole story about carbon trading. As a mechanism for bringing down emissions globally it suffers from other fundamental flaws. To call these merely additional issues would be to downplay their significance. They are fundamental to the chances of humanity's success in avoiding catastrophic climate change. Yet they are rarely addressed or even recognised by the proponents of carbon trading. Some of these issues are explored below. They include the reliance of carbon trading on offsetting, the difficulty of regulating it, and the risk that it could become another speculative bubble which eventually bursts – much like the subprime mortgage crisis, but this time with implications for global climate mitigation as well as the economy.

3. Offsetting in global carbon trading – an escape hatch for emissions reductions

As set out in Section 2, all existing carbon trading schemes allow emitters to purchase emissions reductions credits from outside of the scheme to comply with their targets, ie to offset some of their emissions-reduction obligations. Through this reliance on carbon trading and the active role that emissions trading schemes play in generating increased demand for offset credits through mechanisms such as the Clean Development Mechanism (CDM), carbon trading is not only failing to deliver on its cited goals of guaranteed emissions cuts and technological innovation, it is actually actively undermining global efforts to reduce greenhouse gas emissions and bringing further negative social and environmental impacts.

Offsetting in emissions trading schemes

The EU ETS has been a key driver of the growth and development of the offsets market. Under the EU's 2008 Climate and Energy Package, 50 per cent of the total reduction in emissions envisaged under Phases II and III of the EU ETS can be realised through the use of offset credits through the flexible mechanisms provided under the Kyoto Protocol: the Clean Development Mechanism and Joint Implementation.⁷⁷ Unused permits and credits are also bankable from Phase II through to Phase III of the scheme, meaning that offsets unused during Phase II, for example because of the economic downturn, can be carried over for use in Phase III (2013-2020).

The vast majority of the offset credits available through the EU ETS

come from the Clean Development Mechanism (CDM), the mechanism under the Kyoto Protocol which allows developed countries with binding emissions reduction targets to buy credits from developing countries that are implementing projects which reduce, avoid or sequester CO₂ emissions.

In total 1.6 billion Certified Emissions Reductions (CERs) – the carbon credits generated under the Clean Development Mechanism – will be available for use by EU companies under the EU ETS between 2008 and 2020. As CERs are generally cheaper than EU ETS credits – known as EU Allowances (EUAs) – it is highly likely that all of these offset credits will be used. Global demand for offset credits is also likely to dramatically increase as a result of the plans by the United States to introduce a national emissions trading scheme. The Waxman-Markey American Clean Energy and Security Act would allow up to two billion tons of offsets each year.

There are however extensive, insoluble problems with offsetting, which are generally ignored by proponents of its use as a central component of emissions trading schemes. Not only does offsetting fail to cut emissions, it delays essential structural change in developed country economies. It also institutionalises the idea that cuts can be made in the developing world in place of cuts in the developed world when the science demands reductions in both. It is therefore not only unworkable but grounded in a profoundly unjust approach which allows developed countries to continue polluting while delivering minimal benefits for developing countries and even bringing additional

social and environmental problems in its wake. These fundamental problems with offsetting are explored in more detail below.

The problems with offsetting

- **Offsetting won't deliver fair and adequate global emissions cuts fast enough**

Offsetting allows developed countries to count emissions reductions in developing countries toward their own targets for emissions reductions under the Kyoto Protocol. Yet the Intergovernmental Panel on Climate Change (IPCC), the leading international body for the assessment of climate change, has stated unequivocally that we need reductions in emissions in developed countries as well as deviation from business-as-usual emissions pathways in developing countries in order to guarantee a decent chance of avoiding catastrophic climate change.

The IPCC estimates that meaningful progress would mean a 25-40 per cent cut on 1990 levels of greenhouse gas emissions for developed countries by 2020 combined with a reduction of 15-30 per cent on business-as-usual baselines for developing countries.⁷⁸ These reductions are not being delivered. The EU, for example, has the most ambitious emissions reductions commitments of any of the Annex I countries and the region is still only committed to a reduction of 20 per cent on 1990 levels by 2020.⁷⁹ The IPCC estimates are also now regarded by members of the scientific community as too low.⁸⁰

Even more significant for the debate on offsetting is the fact that the IPCC recommendations do not represent a fair allocation of emissions

OFFSETTING IS AN INSTRUMENT WHOSE ESSENTIAL ROLE IS TO TRANSFER RESPONSIBILITY FOR EMISSIONS REDUCTIONS FROM DEVELOPED TO DEVELOPING COUNTRIES. AS SUCH, IT WILL MEAN WE FAIL TO ENSURE ADEQUATE CUTS IN EMISSIONS REDUCTIONS GLOBALLY.

reductions once the question of responsibility for historical emissions is taken into account. Developed countries, while representing only 15 per cent of the world's population, have emitted almost three quarters of historic emissions.⁸¹ As set out in the introduction to this research, there is an upper limit on the overall amount of emissions that humanity can safely put into the atmosphere if we are to avoid catastrophic climate change. If historic responsibility is taken into account, developed countries have already consumed more than three times their fair share of this atmospheric space, representing a disproportionate contribution to climate change. In contrast, the poorest 10 per cent of the world's population have contributed less than one per cent of these emissions.

There is today a massive gap between the per capita carbon footprint of people in developed countries and those who live in the developing world. Emissions produced per person in the UK are roughly twice those of a person in China and more than 10 times those of someone in India. Per capita emissions in the United States are even higher: the average person in the United States is responsible for nearly four times as many emissions as the average person in China, and 20 times as much as someone in India.⁸²

Taking into account current and projected emissions on a per capita basis, an 80 per cent reduction in developed country emissions by 2050 with no offsetting would still not ensure the levelling-off of per capita emissions by 2050. If offsetting is added into the equation, then global inequalities in the production of carbon emissions increase further. According to Friends of the Earth's analysis of offsetting:

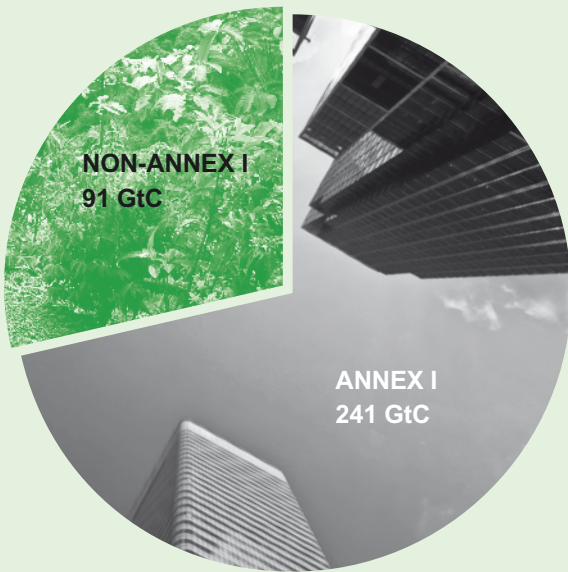
"Whereas the current per capita consumption in developed countries is at least three times that of developing-country per capita emissions, the offsetting scenario presented here [with offsetting by developed countries at the current level of 50 per cent in the EU ETS] would increase this inequality by a factor of more than eight. Such scenarios are morally unjustifiable, conflict with agreements under the UNFCCC, and would probably undermine other international treaties including the UN Declaration on the Right to Development."⁸³

Offsetting is an instrument whose essential role is to transfer responsibility for emissions reductions from developed to developing countries. As such, it will mean we fail to ensure adequate cuts in emissions reductions globally. It also further entrenches a deeply inequitable development framework where inhabitants of developing countries are locked in to a low and decreasing share of global carbon emissions. Under global emissions scenarios which allow offsetting from the developed to the developing world, even with greater availability of cleaner technology, people in developing countries will not be able to make the necessary increases in their emissions associated with improvements in standards of living

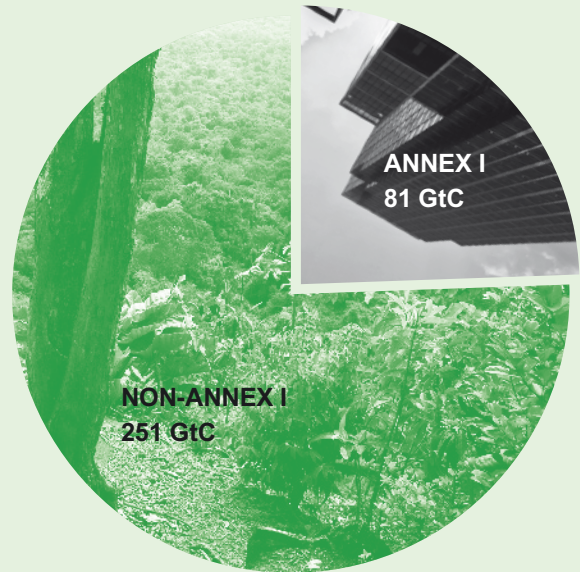
FIGURE 4: HISTORICAL RESPONSIBILITY FOR GLOBAL EMISSIONS AND DISTRIBUTION OF FUTURE EMISSIONS (PER CAPITA)

Annex I: Rich industrialised countries
Non-annex I: Developing countries
GtC = billion tonnes of carbon

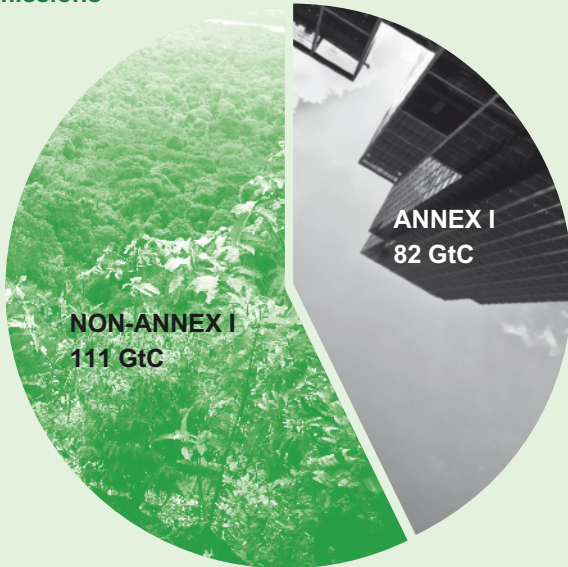
Actual historical emissions



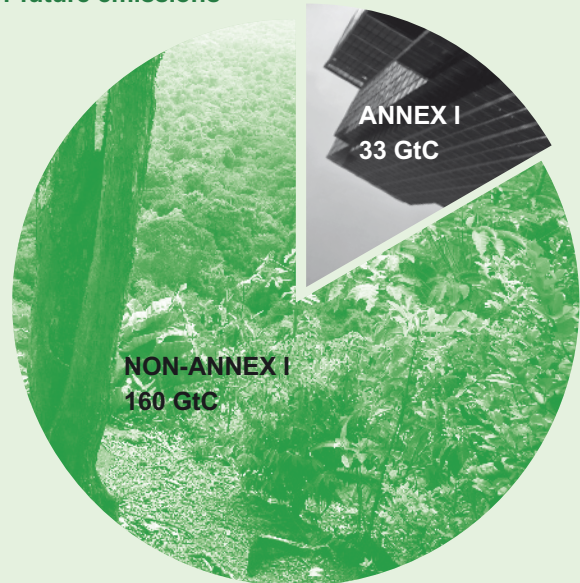
Fair share distribution of historical emissions



Proposed future emissions



Fair share distribution of future emissions



Source: Statistics from Third World Network, Climate Debt: A Primer, June 2009.
 Picture credits – green: Simon Rawles/Friends of the Earth; grey: iStock

and essential services such as housing, food, fuel, health, education and transport. Offsetting denies poor people in developing countries the right to development.

A truly equitable approach to climate change would see developed countries producing negative emissions, ie they would have reduced their carbon emissions to zero whilst making sizeable additional contributions by way of finance and technology to developing countries to help them reduce their emissions.⁸⁴ This fact is recognised by leading climate economist Lord Nicholas Stern who, in his 2009 book *The Global Deal* states: “If the allocation of rights to emit in any given year took greater account both of history and of equity in stocks rather than in flows, then rich countries would have rights to emit which were lower than 2 tonnes per capita (possibly even negative).”⁸⁵

- **Offsetting frequently doesn't deliver emissions cuts at all and can be worse than doing nothing**

One of the key criteria for offset projects under the Clean Development Mechanism is that they are additional. This means they should contribute to reducing, avoiding or sequestering emissions in developing countries beyond those activities that would have happened anyway. Otherwise, the net effect would be an actual increase in carbon emissions globally. Although developing countries submitting projects for crediting under the CDM are required to prove that their projects are additional, in practice there are major difficulties in actually testing and proving additionality.

First and foremost, the CDM Executive Board – which is responsible for approving offset projects for CDM crediting – is

“IF THE ALLOCATION OF RIGHTS TO EMIT IN ANY GIVEN YEAR TOOK GREATER ACCOUNT BOTH OF HISTORY AND OF EQUITY IN STOCKS RATHER THAN IN FLOWS, THEN RICH COUNTRIES WOULD HAVE RIGHTS TO EMIT WHICH WERE LOWER THAN 2 TONNES PER CAPITA (POSSIBLY EVEN NEGATIVE).”
LORD NICHOLAS STERN

massively under-staffed and relies on third party verifiers to check the claims made by project proponents. In practice the verifiers are paid by the project developers themselves, leading to significant conflicts of interest and strong pressure on the verifiers to approve projects which may not necessarily be additional. There is very little oversight of the verification process, and there is significant pressure from CDM investors to speed up the assessments so as to limit the transactions costs and gain project approval as quickly as possible.

Beyond these practical difficulties associated with proving additionality, there are much more fundamental problems with the CDM, including the perverse incentives that it creates, and how to determine what is and is not additional. There are big incentives for developing countries to claim that projects are additional when they are not. There are even reports that the CDM is actually encouraging the building of refrigeration plants in the developing world so that the companies can then benefit from the sale of the credits. According to a Joint Committee of the UK Parliament “the economic incentives offered by the CDM appear actually to be encouraging the building of refrigerant

plants in the developing world, simply in order that the HFC by-products from the plant can be incinerated, and the credits generated from this sold at a large profit.”⁸⁶

The problem of proving additionality is easily demonstrated by looking at CDM crediting of hydro-electric power plants in China. In total, more than 200 large-scale Chinese hydro plants are progressing through CDM validation.⁸⁷ The Government claims that the projects would not have gone ahead without CDM revenues – for example, because a coal-fired station would have been cheaper to build. However, this ignores the fact that the Chinese Government is a strong supporter of hydro-electric development, that hydro-electric power is a major component in its five-year plans, and that the Chinese hydro-electric industry is expected to grow from 132-154 gigawatts (GW) of capacity in 2010 to 191-240 GW in 2020 – growth equivalent to around 20 large coal-fired power stations.⁸⁸ This growth is continuing at the same rate as it has previously, and there is no evidence that removing the CDM would stop China continuing its strategy of building more dams.

Given the significant finances available through the CDM for the development of such projects, it would be unreasonable to expect countries not to factor it into their economic planning. Hence it becomes impossible to know when a project is additional, and to prove it. In the words of carbon trading specialist Larry Lohmann: “This makes impossible any distinction between fraud and non-fraud, rendering any attempt at offset regulation ultimately pointless.”⁸⁹ Or, as is aptly put by UK journalist Dan Welch: “Offsets are an imaginary

ALTHOUGH IT IS CLEANER, IT IS STILL A NEW FOSSIL FUEL POWER STATION, AVERAGE BY WESTERN STANDARDS. IN THIS CASE THE CDM IS HELPING INDIA TO COPY AND LOCK IN TO A HIGH-FOSSIL FUEL, WESTERN DEVELOPMENT PATH, RATHER THAN TAKE A LOW-CARBON PATH.

commodity created by deducting what you hope happens from what you guess would have happened".⁹⁰

These problems with verifying that offset credit represents a real, measurable, and long-term reduction in emissions have already led to a lack of market confidence in the carbon markets, with credits from the Clean Development Mechanism (CDMs) currently trading on carbon markets at an approximate 10 per cent discount compared to permits from emissions trading schemes like the EU ETS.

- **Offsetting locks developing countries into high-carbon development pathways**

The development of projects under the CDM is driven largely by market forces and hence by the search by investors for the greatest returns. This in turn means that projects which gain support under the scheme are often the lowest cost options, which are the least beneficial from the perspective of climate mitigation and setting developing countries onto low-carbon development pathways. The largest source of credits from the CDM comes from projects which are cheapest to implement and easiest to calculate the benefits of, for example projects applying widely-available technologies to clean up greenhouse gases like HFCs, N₂O, coal mine methane and landfill gas.⁹¹

Not only are these projects doing nothing to help the developing countries hosting them to move away from existing carbon-intensive infrastructure, many are providing significant profits, and these profits are often going to companies who are investing in building more greenhouse gas-emitting plant. For example, Wara and Victor estimate that HFC projects in the CDM in 2006 would generate €4.7 billion of credits for refrigerant manufacturers, but destroying the gases costs less than €100 million. A similar situation occurs for N₂O projects, where the price of CERs is tens of times more than the cost of introducing the technology.⁹²

In fact, fossil fuel-intensive projects such as new coal-fired power stations qualify for CDM credits as long as they can demonstrate marginal improvements in emissions compared to similar projects nearby. For example, the Tanjavur natural gas combined-cycle power plant in Tamil Nadu, India, claims to reduce carbon emissions by 180,000 tonnes by being cleaner than existing power plants in the region, and so displacing dirtier power from the grid. Although it is cleaner, it is still a new fossil fuel power station, average by western standards. In this case the CDM is helping India to copy and lock in to a high-fossil fuel, Western development path, rather than take a low-carbon path.⁹³

Finally, there are major concerns that the CDM can lead to what is known as 'regulatory chill', by further undermining countries from making progress on sustainable development through enacting national laws and regulations to increase environmental protection and reduce emissions. CDM projects can claim to be additional and therefore receive credits if it can be shown that there

are no laws requiring the introduction of new technology which would produce the same effect. This has the perverse effect of creating significant incentives for companies planning offset projects under the CDM to lobby against the introduction of new laws, and further incentives for governments hosting such projects not to introduce new laws.

The future of offsetting

The problems with offsetting set out above are largely insurmountable and could not be addressed by altering or reforming the CDM. As set out in Section 2, the central mechanism in any offsetting project – the displacement of emissions reductions from developed to developing countries – is not viable given the level of cuts that need to be made over very short timescales if we are to avoid catastrophic climate change. Offsetting merely swaps action in developed countries for action in developing countries when we actually need to tackle carbon emissions in both the global North and the global South, with the greatest action being taken by developed countries because of their historic responsibility for the majority of greenhouse gas emissions.

Furthermore, such a displacement of cuts from developed countries to the developing world is fundamentally unjust given that developed countries have been responsible for the vast majority of emissions historically and also that significant inequalities continue to exist between levels of emissions produced per capita in developed and developing countries.

Offset projects also don't guarantee the same level of carbon savings in developing countries as should have been made in developed countries

as it is impossible to say whether a project is additional, ie that it would not have happened without CDM support. Furthermore, they often bring very limited social and environmental benefits and often create problems for local people instead, for example plantations displacing communities from their land. They also serve to lock developing countries into high-carbon development pathways, creating additional expensive hurdles for countries to jump on later.

Some of the issues around social and environmental impacts and high-carbon lock-in might be tackled through changes to the criteria which determine what types of projects receive CDM funding, and through much tighter oversight and scrutiny of project proposals and delivery. Yet the UNFCCC is deliberating proposed changes to the CDM, likely to be agreed at the talks in Copenhagen in December 2009, that do not focus on the fundamental concerns with the scheme or offsetting more generally as set out above, but on how to reduce regulation and increase the supply of credits available.

However, the two most significant problems with offsetting – displacement of cuts when we need cuts in both developed and developing countries, and proving additionality – are impossible to address as illustrated above.

Although these fundamental problems with offsetting are widely known and understood, its expansion is being driven forward by some parties in the UNFCCC negotiations. The EU is one of the leading proponents of its expansion. The European Commission (EC) strategy paper for the Copenhagen climate talks states that “the EU should see common ground with the US and other

countries in implementing cap-and-trade systems and generating demand for offset credits in a coordinated manner.”⁹⁴ As highlighted earlier, the EU has also been active in proposing new types of offsetting mechanisms in the UNFCCC negotiations, including sectoral trading and sectoral crediting.

There are proposals under consideration in the negotiations for the extension of offsetting mechanisms to include forest carbon trading through Reducing Emissions from Deforestation and Forest Degradation or REDD. The same central problems with offsetting apply to REDD but the scheme also has major implications in terms of impacts on the rights and livelihoods of forest-dwelling communities and Indigenous Peoples (see box below).

In conclusion, it looks highly likely that the use of damaging offsetting projects as part of carbon trading schemes, purportedly to tackle global climate emissions, will expand in spite of there being conclusive evidence that offsetting is hindering the task of bringing down global greenhouse gas emissions in a just and effective way. Furthermore, the damaging impacts of offsetting projects are likely to be amplified further if proposals for the creation of a global carbon market are taken forward. The linking of emissions trading schemes is likely to lead to further deterioration in the quality of offset credits and the undermining of controls on them unless common rules are put in place. For example, the proposed emissions trading scheme in the United States envisages the use of offset credits not regulated under the Kyoto Protocol, ie unlike the EU ETS it will not limit offset credits tradable in the scheme to those from the Clean Development Mechanism and

Joint Implementation. As a result, a linking of the EU and US schemes as envisaged under EU proposals would mean non-UN regulated offsets trading in the US scheme would also enter the EU scheme, undermining the rules of the EU scheme. The overall effect would be a deterioration in the environmental integrity of offsets to the lowest common denominator, unless countries participating in the linked global carbon market agreed to common rules on which offset credits were tradable. However, the most detailed vision of a global emissions trading scheme so far – that set out in the Lazarowicz report – sees no role for internationally-agreed common regulation of the linked global emissions trading scheme.

Lazarowicz’s report states that: “at the emitter level, the national authority should remain responsible for the effective regulation and implementation of its own ETS, even after linking to other ETSs. Cooperation between countries to link their domestic ETSs bilaterally should also take place outside the intergovernmental negotiation processes and institutions. A light-touch joint committee consisting of representatives of national authorities could coordinate between linked ETSs and negotiate with new entrants.”⁹⁷

REDUCING EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION (REDD)

Certain proposals being put forward as part of the REDD initiative would reward the protection of forests in developing countries by linking them to the global carbon market, allowing companies and governments to count the carbon benefit of replanted or protected forests against their carbon emissions.

These proposals would hence turn REDD into an offsetting mechanism and, as with other forms of offsetting, it will mean that countries with emissions reduction obligations avoid necessary economic transformation. We need to reduce deforestation and emissions from fossil fuel use, not trade between them.

There are also additional risks and problems with the scheme.

- **Plantations:** Proposals within the REDD discussions would define plantations as forests, and as a result REDD funding could be used to replace forests with large monoculture plantations. Not only do plantations store on average only 20 per cent of the carbon of intact forests, replacing forests with plantations can have devastating social and economic impacts on those that live in forests and rely on them for food, shelter and medicine. According to the Food and Agricultural Organisation (FAO) 1.6 billion people globally rely on forests, including 60 million indigenous people who are entirely dependent upon forests for their livelihoods,

food, medicines and building materials.⁹⁵

- **Governance and indigenous peoples' rights:** The inclusion of forests in carbon markets will also undermine public governance, weakening governments' ability to protect and manage natural resources. Furthermore, by increasing the financial value of forests, carbon market proposals in REDD would be likely to trigger a land grab, and risk the prospect of social dislocation and violent evictions of Indigenous Peoples and forest-dwelling communities without formal land title.

Source: REDD Myths, Friends of the Earth International⁹⁶



Jerry Benjamin, 19, a local Makushi and guide at Turtle Mountain, in the Iwokrama Forest, Guyana.

4. Climate speculation – the risk of carbon subprime

The carbon trading system is already far more complex than a simple trading of permits and credits between firms covered by emissions trading schemes and those running offset projects. The development of secondary markets involving financial speculators and complex financial products based on the financial derivatives model brings with it a risk that carbon trading will develop into a speculative commodity bubble. This in turn would risk another global financial failure similar to that brought on by the subprime mortgage crisis with fundamental implications for the ability of the system to deliver emissions reductions.

Involvement of financial speculators

As highlighted in the introduction, at any one time the vast majority of permits and credits available in the carbon markets are not held by compliance traders such as utilities and other companies which must own them in order to comply with their emissions reduction obligations. They are owned by other actors – traders and speculators whose participation in the markets is for the purpose of making money from the buying and selling of credits and permits, ie speculation.

Carbon trading specialist Larry Lohmann has written: “As a new ‘asset class’, carbon has proved a magnet for hedge funds, energy traders, private equity funds and large global investment banks such as Barclays, Citigroup, Goldman Sachs, Credit Suisse, BNP Paribas and Merrill Lynch as well as index providers and European exchange-traded commodity sponsors.”⁹⁸ Many of these

FIGURE 5: TOP 20 KYOTO MARKET CARBON CREDIT BUYERS (NUMBER OF PROJECTS)

| Buyers (sector) | No. of projects |
|--|-----------------|
| EcoSecurities (carbon finance, brokerage and consulting) | 296 |
| Carbon Asset Management Sweden (carbon finance) | 132 |
| AgCert (carbon finance) | 97 |
| EDF Trading (carbon finance) | 87 |
| IBRD (banking) | 84 |
| RWE (utilities) | 80 |
| Cargill International (agribusiness) | 78 |
| Mitsubishi (technology) | 72 |
| Trading Emissions (carbon finance) | 68 |
| ENEL (utilities) | 63 |
| Vitol (oil trading) | 60 |
| MGM Carbon Portfolio (carbon finance) | 59 |
| Agrienergy (carbon finance) | 58 |
| Carbon Resource Management (carbon finance) | 57 |
| CAMCO (carbon finance) | 56 |
| Marubeni (carbon finance) | 53 |
| Kommunalkredit (banking) | 53 |
| Essent Energy Trading (carbon finance) | 51 |
| Climate Change Capital (carbon finance) | 44 |
| Energy Systems International (carbon finance) | 43 |

Source: The Corner House submission to the UK Environmental Audit Committee Inquiry, 2009; original data from United Nations Environment Programme Risoe Centre: www.cdmpipeline.org

financial institutions have set up desks to speculate in carbon permits and, as with the financial derivatives markets, many new institutions have also been set up to deal with the new commodity of carbon. According to Lohmann, by 2008 there were about 80 carbon investment funds set up to finance offset projects or buy carbon credits, managing nearly US\$13 billion, and most of these are oriented towards speculation rather than helping companies to comply with the carbon caps.⁹⁹

In addition to these major financial actors and new specialist institutions set up to speculate on the carbon markets, many trading companies active in the energy markets are also active in carbon trading. Similarly a significant number of industrial companies like steel-maker ArcelorMittal have also developed new arms aimed at profiting from the carbon trade.⁹⁰

Why is this involvement of speculators in global carbon trading of concern? Primarily because the involvement of actors whose sole purpose is to profit from the trading of carbon credits and permits significantly increases the potential for a speculative bubble. As described in Friends of the Earth US's analysis of the subprime risks of the carbon markets, as more investors become involved, especially hedge funds, they can increase market volatility and create a potential asset bubble: "A market dominated by speculators may push up prices, create a bubble and spur the development of subprime assets."¹⁰¹

A speculative bubble is where trading in a commodity takes place in increasingly high volumes at prices which are increasingly unrelated to the underlying value of the commodity,

eventually leading to a stock market crash where the tradable value of the commodity suddenly aligns itself with the underlying value. Or, to put it more bluntly, where: "Too much money chases too few viable investments, which can spur the development of toxic assets."¹⁰²

From the crash in the market for black tulips in the Netherlands in the seventeenth century to the dot com bubble of 1990s and the subprime mortgage crisis we are now facing, speculative bubbles are a consequence of the failure of governments adequately to regulate markets, often combined with the inability of market actors to calculate and take proper account of uncertainty. They have far-reaching consequences, often including knock-on economic impacts which can cause widespread job losses, as the current global economic downturn is now demonstrating.

In the carbon markets, the risk is twofold. The first is that the involvement of speculators will drive the development of what has been described as subprime carbon, ie contracts to deliver carbon that carry a relatively high risk of not being fulfilled. The second is that we become increasingly reliant on carbon trading as a mechanism for reducing emissions as proposed by key global actors like the European Union, and then the increasing prevalence of these subprime carbon contracts leads to a market crash which fundamentally undermines an already weak and ineffective mechanism for avoiding catastrophic climate change.

Some of the developments that led to the subprime mortgage crisis in the United States and sparked the global economic downturn are already recognisable in the carbon

trading markets. These include the use of increasingly complex financial instruments, for example the bundling together of carbon credits for buyers. In the subprime crisis, banks developed increasingly more exotic, complex and opaque financial products to absorb the demand from speculators for mortgage-backed securities and similar products. The complexity of the products meant that credit rating agencies which were meant to be providing rigorous assessments of mortgage-backed securities failed to analyse the thousands of mortgages which comprised these securities.

Similarly complex instruments are already being used in the carbon markets. For example, offset aggregators are bundling small offset projects for buyers,¹⁰³ increasingly the likelihood of similar challenges to accurate valuation of assets as the carbon markets grow.

Complex financial derivatives instruments have been described by US businessman and investor Warren Buffet as "financial weapons of mass destruction."¹⁰⁴ According to Larry Lohmann: "Carbon options have been used since 2005 and there are now swaps between Clean Development Mechanism credits and EU allowances, allowing more liquidity and larger positions. Proposals to securitize carbon credits (as a new 'asset class') have been made at least since 2007, and EcoSecurities invented a CDO [collateralised debt obligation]-type instrument for carbon in 2008. The Chicago Climate Futures Exchange, a subsidiary of the Chicago Climate Exchange, already offers a futures contract based on emissions allowances under an anticipated US federal cap and trade scheme."¹⁰⁵

The risk of the development of

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VINCENT DE RIVAZ, CHIEF EXECUTIVE EDF ENERGY, JANUARY 2009

subprime carbon assets has already been recognised by participants in the markets themselves, as highlighted by the UK Financial Services Authority (FSA), the UK financial services regulator which has some limited responsibilities for regulating the derivatives trading associated with the carbon markets. In its research on the risks and challenges of carbon trading, the FSA found:

“Some market participants have expressed concern about the impact the fixed supply of emission allowances might have on the derivatives market if the number of outstanding derivative contracts grows at such a rapid pace that the number of financial contracts exceeds the pool of underlying assets that can be delivered at expiry.”¹⁰⁶

Subprime carbon assets are most likely to be credits from offset projects because of the fundamental problems in offsetting examined earlier, and because sellers can make promises through the carbon markets to deliver carbon credits before the credits have actually been issued for a project.¹⁰⁷ Such offset credits are comparable to subprime loans or junk bonds, ie debts that carry a relatively high risk of not getting paid.

Many of the problems with offsetting examined earlier – the prevalence of perverse offset projects where companies create powerful greenhouse gases just to destroy them so as to claim offset credits, the problems with proving additionality, and the problems with verifying greenhouse gas savings from more legitimate offset projects – are likely to lead to the creation of more and more subprime offset credits, eventually undermining the confidence of the markets in the value of the assets being traded.

Lack of regulation of carbon trading

In theory adequate regulation of carbon trading could contribute to mitigating the risk of a speculative bubble and eventual crash of the carbon market. However, current regulation is limited, complex and uncoordinated. There are also major barriers to the development of more effective regulation of the carbon markets. The United Nations is the main governing body for emissions reduction projects and regulation of the two flexible mechanisms – the Clean Development Mechanism and Joint Implementation – is conducted by bodies accountable to the United Nations: the CDM Executive Board and the JI Supervisory Committee. Yet responsibility for assessing emissions reductions projects under each of these mechanisms lies with each signatory country to the UNFCCC, and responsibility for regulating emissions trading systems lies with the national and regional governments. The EU ETS is regulated by the European Commission, but the individual EU member states have certain competencies and responsibilities

for implementing and regulating the scheme.

In the UK the Department for Energy and Climate Change (DECC) is the competent authority for the EU ETS, ie for the underlying emissions markets, whereas the Financial Services Authority (FSA) has responsibilities for market participants conducting activities in relation to derivative instruments based on the underlying emissions allowances. As if this is not complex enough, the FSA points out that: “Emissions derivatives traded by certain firms may not be caught by MiFID – the EU’s Markets in Financial Instruments Directive, which guides the FSA’s regulatory role in relation to the carbon markets – because of exemptions to the directive.”¹⁰⁸

This complex web of international, regional, national and multi-agency competencies and responsibilities significantly increases the risk of poor regulatory oversight and breaches in existing rules being missed or overlooked. Furthermore, the lack of regulation in the global financial markets – now widely acknowledged as having contributed to the current credit crisis – brings significant additional risks for carbon trading.

Recognition of subprime risks

The parallels between carbon trading and the subprime mortgage market and the likelihood of a subprime carbon crisis are becoming widely recognised and have been remarked on even by private sector leaders and actors within the carbon markets themselves. Vincent de Rivaz, the chief executive of the UK arm of the French gas and electricity group EDF Energy has called on politicians to look at the working of the EU ETS and

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MARC STUART, ECOSECURITIES**

whether it is delivering the results it is intended to: “We like certainty about a carbon price... [but] the carbon price has to become simple and not become a new type of subprime tool which will be diverted from what is its initial purpose: to encourage real investment in real low-carbon technology.”¹⁰⁹

Rivaz also questioned more broadly the reliance being placed on carbon markets for delivering the changes we need to tackle climate change and pointed to a similar over-reliance on markets without tougher safeguards being responsible for the financial turmoil that instigated the financial crisis and subsequent global recession. According to the energy boss: “We are at the tipping point where we... should wonder if we have in place the right balance between government policy, regulator responsibility and the market mechanism which will deliver the carbon price.”¹¹⁰

Similarly, Marc Stuart of the carbon trading firm EcoSecurities confessed to The Wall Street Journal in the wake of his firm’s first stock crash: “I guess in many ways it’s akin to subprime.... You keep layering on crap until you say, ‘We can’t do this anymore.’”¹¹¹

5. Climate finance – a smokescreen for lack of action

A major argument put in favour of carbon markets is that they will generate much-needed finance to fund adaptation to climate change, and a transition to a low-carbon economy in developing countries. There is no doubt that large sums of money are needed to finance adaptation and mitigation in developing countries. However, the evidence to date that the carbon markets will provide them is not good. Far more concerning is the fact that developed countries are pointing to the expansion of funding through the carbon market as a way of fulfilling their commitments under the UNFCCC to provide finance for mitigation and adaptation in developing countries when this is not the case. The UNFCCC commits developed countries to providing new and additional finance to pay the full incremental costs of developing-country mitigation and adaptation. Counting financial transfers through the carbon market is double counting. This finance is not new and additional as it is generated through the offsetting of developed-country emissions reductions.

Amount of finance needed

The Stern Review estimated that mitigation to stabilise the level of greenhouse gas emissions in the atmosphere at even 500 ppmv CO₂e, a level which would still carry a significant risk of dangerous climate change, would cost around two per cent of global GDP annually – more than US\$1 trillion. Stern said adaptation costs are likely to rise to hundreds of billions of dollars a year.

**CARBON MARKETS, BY VIRTUE
OF THE VERY INCENTIVE
SYSTEMS THAT THEY SET UP,
ARE FAILING TO CHANNEL FUNDS
TO THE POOREST COUNTRIES
AND COMMUNITIES.**

As highlighted at the beginning of this report, action to stabilise and reduce greenhouse gas emissions whilst adapting to the impacts of climate change will be particularly difficult for developing countries, whose levels of socio-economic development necessitate that such action is taken concurrently with ongoing efforts to alleviate poverty and promote sustainable development. The African Group of Nations in the UN climate negotiations argues that developing nations will need at least US\$200 billion a year for mitigation.¹¹² In addition, the United Nations Development Report 2007/2008 estimates that US\$86 billion a year – 0.2 per cent of developed country GDP or around one tenth of their current military spending – is needed by 2015 by developing countries to adapt to climate change.¹¹³ This is in the context of global patterns of uneven development in which 2.4 billion people lack fuel and 1.6 billion are without electricity,¹¹⁴ and in which many developed countries are still failing to live up to the commitment made at the Monterrey Financing for Development Conference in 2002 to provide 0.7 per cent of their GNP in international aid to support sustainable development for the world’s poorest.¹¹⁵

Not enough

Looking purely at volumes of finance provided by carbon trading, predicted flows up to 2020 are

grossly insufficient compared to what is needed to support developing countries in bringing down their carbon emissions, and adapt to the impacts of climate change whilst also advancing poverty alleviation and sustainable development. For example, CDM revenues from the EU ETS – the world’s largest carbon trading scheme – are likely to be less than US\$5 billion a year to 2020. This is around one tenth of a fair EU contribution towards the global mitigation costs estimated by the UN.

Other failings of carbon market finance

As well as being far too small in volume, funding from carbon trading is highly limited in other ways. Because of the attraction of carbon trading to low cost options, the majority of CDM projects are located in more industrialised advanced developing countries. Less than one per cent of projects under the CDM are located in the Least Developed Countries (LDCs), countries which according to the United Nations exhibit the lowest indicators of socioeconomic development.¹¹⁶ This situation does not look set to change much in the near

DEVELOPED COUNTRIES ARE HIDING BEHIND THE CARBON MARKET TO COVER FOR NOT DELIVERING ON THEIR LEGAL OBLIGATIONS TO PROVIDE NEW AND ADDITIONAL FINANCE TO SUPPORT DEVELOPING COUNTRIES IN TACKLING CLIMATE CHANGE. THIS IS TOTALLY UNACCEPTABLE.

future: the four countries predicted to be generating the most CDM credits in 2012 are the more advanced developing countries of China, India, Brazil and South Korea.¹¹⁷

It is these more advanced developing countries, with already higher levels of high-carbon dirty industry, which will need the most significant financial support in decarbonising their economies. However, the poorer Least Developed Countries also need major financial transfers in order to support low-carbon clean development and adaptation to the impacts of climate change. Carbon markets, by virtue of the very incentive systems that they set up, are failing to channel funds to the poorest countries and communities. Furthermore,

as demonstrated in the offsetting section above, offset finance is attracted to the lowest cost projects as this yields the highest returns for investors. As a result, finance from the carbon markets is not supporting the major structural changes needed in advanced developing countries like India, China and Brazil. Instead, offset finance is further locking developing countries into the failed high-carbon development pathways of the industrialised North.

Even if these major failings in the volume and nature of finance from carbon markets could be addressed, carbon trading will never provide the reliable and predictable flows of finance to developing countries that are necessary to truly support well-planned sustainable development. This is because the flows are by their very nature unpredictable, depending as they do on the price of carbon at any given time. Price volatility in the carbon markets is also aggravated by the involvement of speculators. According to the United Nations World Economic and Social Survey 2009, “the trading of emission certificates as financial assets and speculative instruments can generate a high volatility in the price of carbon.”¹¹⁸

Double counting

Even the analysis above of the major shortcomings of carbon trading fails to take into account one fundamental factor which alone determines that the carbon market cannot be relied upon to provide finance for developing country mitigation and adaptation. That is the issue of double counting. Because they have done most to cause climate change, developed countries have committed under the UNFCCC to providing new and additional finance to pay the full incremental costs of developing-country adjustments to mitigate and adapt to climate change. This is covered by Articles 4.1, 4.3, 4.7, 4.8, and 4.9 of the Convention amongst others. Funding from the carbon market, resulting as it does from the offsetting of developed-country emissions reductions, does not constitute new and additional finance. Counting finance from the carbon market towards the fulfilment of the legal obligations of developed countries to provide finance to developing countries is essentially double counting.

This fundamental flaw is being ignored by developed countries who

– rather than accepting their legal obligations under the Convention and committing to the necessary financial transfers – are increasingly saying that developing countries should put forward the finance themselves and get the rest through the carbon market. The European Commission's "global finance blueprint" was put forward in September 2009. This proposed that of the €100 billion a year by 2020 it estimated was needed by developing countries to mitigate their emissions and adapt to climate change, domestic public and private finance from developing countries themselves could cover 20-40 per cent, the international carbon market around 40 per cent, and only the remainder – as little as 20 per cent – should come from international public finance, including from financial transfers from developed countries.¹¹⁹

Developed countries are hiding behind the carbon market to cover for not delivering on their legal obligations to provide new and additional finance to support developing countries in tackling climate change. This is totally unacceptable.

CAN THE PROBLEMS WITH CARBON TRADING BE OVERCOME?

There are a variety of views on whether or not the problems with carbon trading can be overcome. Some more optimistic critics believe that it is within the realms of possibility that the fundamental problems with carbon trading could be addressed. In taking a position on whether the problems with carbon trading could be overcome, it is important that we look at this possibility, ie at what it would take to prevent the damaging impacts of carbon trading and turn it into an effective mechanism for tackling global greenhouse gas emissions. A list of what these changes might look like is set out below.

Potential solutions to carbon trading

- **Set a low enough cap:** Setting a cap on emitters covered by carbon trading schemes that is low enough to ensure that reductions in emissions in developed countries take place in line with climate science and an equitable reduction of emissions globally based on historic responsibility.
- **Removal of all forms of offsetting:** Stopping the inclusion of all forms of offset credits in emissions trading schemes, including the CDM, REDD, sectoral approaches and non-UN mandated offset schemes.
- **Prohibit speculative trading activity:** Prohibit the involvement of all non-compliance actors in the carbon markets in order to end speculation and reduce the likelihood of a subprime carbon bubble and subsequent market crash.
- **100 per cent auctioning of all carbon permits:** In order to prevent windfall profits and raise revenue to finance climate mitigation in developing countries.
- **Agree global regulation of emissions trading:** Agreement on global rules and standards for emissions trading.
- **Drive real innovation:** Address the perverse incentives created by carbon trading for lock-in to high-carbon infrastructure by the industries for which emissions cuts are hardest and most expensive to make.

Prospects for achieving these solutions

What changes are possible in theory?

Some of the above reforms to emissions trading schemes could notionally be achieved. Taking the EU ETS as a hypothetical example, governments could agree to set a low enough cap to deliver reductions in emissions, not only in line with the targets suggested by the latest science to be necessary for avoiding an increase in average global temperature above the critical threshold, but also which address the responsibility of developed countries for the overwhelming majority of historic emissions. It would have to be a very low cap in order to deliver a reduction in EU emissions by at least 40 per cent by 2020, with no offsetting.

European member states could also agree to remove all forms of offsetting from the scheme, so that participating companies could only trade in EU allowances and not in offset credits. Finally, EU member states could, theoretically, agree to prohibit the involvement of all other actors except for compliance traders in the EU ETS, to outlaw all forms of speculative trading and to auction 100 per cent of allowances. These changes would address some of the fundamental problems with existing emissions trading schemes in the EU ETS.

It is also possible that countries planning new emissions trading schemes could design and implement schemes where these issues are addressed, and that collectively countries could agree common regulations and standards for their schemes.

However, addressing the other fundamental problem identified, that of the trading element of emissions trading schemes serving to lock in high-carbon infrastructure, would be much more difficult. Incentivising highly-polluting heavy industries, for which emissions cuts are expensive, to shift to cleaner technologies rather than simply opting out through the purchasing of credits would require either the removal of their trading option altogether, or the setting of clean technology standards alongside the emissions trading mechanisms. Addressing this problem effectively necessitates either supplementing the emissions trading scheme with significant government intervention, or reforming the scheme so that it is in effect no longer a trading scheme, at least for a significant proportion of the participants.

What changes are possible in practice?

In assessing whether carbon trading could deliver the emissions reductions we need in order to avoid catastrophic climate change in a just and equitable way, it is necessary however, to take a view not only on whether effective and non-damaging emissions trading schemes could be achieved in theory, but also what the likelihood of this is in practice. The probability that the above shopping list of changes could ever be achieved and the hypothetical 'perfect carbon market' put in place, depends to a significant extent on the political forces and interests that have grown up around the emissions trading industry and the implications that follow from this.

An artificial market constructed by governments

As pointed out by regulators and commentators alike, the global carbon market is unique as commodity markets go, in that it is artificially constructed by politicians. According to the UK Financial Services Authority: "The key differences in the emissions market, compared with other commodities markets, are that it is a politically-generated and managed market and that the underlying [commodity] is a dematerialised allowance certificate, as opposed to a physical commodity."¹²⁰ Similarly, Sophie Grene in the Financial Times has argued: "As an asset class, carbon is too young for any precise conclusions to be drawn about it... However, since its very existence depends on the political will to limit greenhouse gases, and both supply and demand depend largely on government policy, its risk profile is uniquely related to politics."¹²¹

Susceptibility to lobbying and political pressure

As its existence depends entirely on political will and action by governments, we can confidently assume that emissions trading is, like all other government policies and interventions, highly susceptible to pressure from powerful interest groups. In fact, it is widely argued that the adoption of emissions trading schemes and the establishment of the carbon market were themselves partly the result of pressure from interest groups. For example, according to Oxford economist and adviser to the UK Government on climate policy Dieter Helm, the fact that the EU ETS was established at all was partly as a result of strong lobbying from polluters

for a permits scheme rather than a tax on carbon emissions because of the income effect, ie who gets the money.¹²² Revenues from taxation accrue to governments whereas initially under the EU ETS permits were given away rather than auctioned and so companies themselves were the financial beneficiaries.

Impacts of lobbying on development of emissions trading schemes

Experience from the EU ETS has further shown that carbon trading as a system is highly vulnerable to lobbying and influence by vested corporate and industrial interests. According to Dieter Helm: "Having got the EU ETS up and running, there are now very powerful vested interests in not only perpetuating it, but also weighing on its evolution."¹²³ The impact of lobbying by these vested interests has been significant, and responsible for some of the key failures of the scheme, including the lack of political will to set a low enough cap and generate a high enough carbon price to stimulate emissions reductions.

The severe weaknesses of the EU ETS that have resulted from this lobbying and political pressure are articulated by Helm as follows: "The EU ETS now looks a very shaky foundation on which to base the policy of decarbonisation of the EU economy. The carbon price may even collapse, and very considerable volatility is already apparent. The EU has therefore landed itself with a complex and relatively inefficient tradable permits system which maximises the scope for vested interests to pursue the resulting economic rents. It provides no long-term price of carbon, and the short-term price that emerges

is likely to remain highly volatile.”¹²⁴

Furthermore, very few of these issues have been addressed in the negotiations for Phase III of the EU ETS. European member states, driven by the desire to promote the competitive advantage of their domestic firms in the face of growing competition from rapidly industrialising advanced developing countries like India and China and prevent the relocation of those firms abroad, lobbied heavily for exemptions in negotiations for Phase III of the EU ETS. In their influential paper, ‘How to get climate policy back on course’, Gwyn Prins of the London School of Economics and his colleagues assert: “In the case of the European Union Emissions Trading Scheme (EU ETS), the policy process was effectively voided before formal agreement in December 2008 by the provision of exclusions for coal-dependent eastern European economies, for industrial producers subject to international competition and by the requirement imposed by Italy that the whole process should be reviewed root and branch after the forthcoming UNFCCC Copenhagen conference.”¹²⁵

Polluting industries covered by the EU ETS were highly successful in lobbying for the distribution by governments of permits for free rather than by auction. 90 per cent of sectors deemed to be at significant risk of impacts on their international trade competitiveness as a result of emissions trading rules, often referred to as ‘carbon leakage’, will be excluded from any auctioning of permits in Phase III of the EU ETS because of trade exposure, and this includes the majority of the EU manufacturing sector.¹²⁶

In the United States carbon trading has shown itself to be equally

GIVEN THE HISTORY OF CORPORATE LOBBYING OVER EMISSIONS TRADING SCHEMES, THE CHANCES OF ACHIEVING THE BASIC CHANGES TO EMISSIONS TRADING MECHANISMS SET OUT ABOVE LOOK BLEAK.

vulnerable to lobbying and regulatory capture. Companies have lobbied on various carbon trading bills for ‘safety valves’ or ‘off ramps’ that would raise the carbon cap in certain situations, fundamentally undermining the already limited environmental integrity of the system.¹²⁷

Complexity and civil society scrutiny

All government policy-making and law-making is vulnerable to influence from powerful interest groups. However, the complexity of carbon trading is without doubt a factor in allowing the EU ETS to have been manipulated and watered down to the extent that it has. Similarly, the complexity of forthcoming schemes is unquestionably part of the reason why those schemes are being developed with similar fundamental flaws and shortcomings.

Excessive influence over government decision-making by powerful economic interest groups can be balanced to a limited extent by influence from other interest groups in civil society, for example those primarily concerned with environmental and social outcomes. However, the exercise of this counterbalancing force depends to a large extent on the ability of civil society groups to access, process and scrutinise information about the policies in question.

As this report itself demonstrates, carbon trading is without doubt an

immensely complex policy area, covering as it does multiple industry sectors and with structures, processes and terminology that are verging on the impenetrable for those who do not work in carbon trading on a day-to-day basis. The exercise of civil-society scrutiny and influence is therefore significantly more difficult than over simpler government policy mechanisms such as taxes, or standards covering single industry sectors.

The future of emissions trading: the growing role of interest groups

Given the history of corporate lobbying over emissions trading schemes, the chances of achieving the basic changes to emissions trading mechanisms set out above look bleak. The establishment of emissions trading schemes has already created a whole new constituency whose vested interests lie not in climate mitigation but in the perpetuation of the schemes and further changes to increase their extraction of profits from the system. Again, according to Helm: “A tradable permits regime creates new markets which in turn create rents for participants. There is now a rapidly growing set of vested financial interests with every incentive to lobby for the retention and development of the EU ETS.”¹²⁸ Similarly, leading NASA scientist and climate specialist James Hansen has argued: “Carbon trading does not solve the emission problem at all... In fact it gives industries a way to avoid reducing their emissions. The rules are too complex and it creates an entirely new class of lobbyists and fat cats.”¹²⁹

It is highly unlikely that these interest groups will be supportive of changes to emissions trading which

undermine the rents that they are able to gain from it. Helm asserts that the situation with the EU ETS is already very similar to that of Europe's Common Agricultural Policy (CAP). The EU's main project of the 1960s, while the aim of the CAP was to stabilise agricultural markets, over time it metamorphosed into a grossly distorting and expensive policy with agricultural lobbyists capturing the rents from the scheme: "The danger is that climate policy will go the same way – as interested parties battle for the very considerable rents attached to the various components."¹³⁰

Furthermore, the outlook for improvements is further diminished by the growing involvement of non-compliance actors, ie financiers and speculators, in the carbon markets – another powerful group with a vested interest in maintaining the system as it is. Regulators predict that the already dominant position of these actors in the carbon markets is likely to increase even further. According to the UK Financial Services Authority: "As the market grows it is expected that there will be a change from the current estimated 50-50 split between trade and financial participants, with financial participants increasing their participation significantly to a similar level to other commodities markets, where financial, ie non-physical, participants can typically make up 90 per cent of market transactions."¹³¹

Given the historical impacts of lobbying by interest groups on the establishment and development of emissions trading schemes, and the growing involvement of powerful industrial and financial actors with a strong interest in the perpetuation and growth of carbon markets in a form that delivers sizeable profits, it is clear that any attempts to implement

THE ROLE OF THE UK IN THE GLOBAL CARBON MARKET

The role of the UK as a leading global financial centre hosting a great many banks, financiers and investment houses goes a long way towards explaining the highly active role the UK Government is playing in promoting the expansion and linking of emissions trading schemes globally.

UK businesses play a significant role in the global carbon market. UK companies are by far the biggest investors in credits from CDM projects, accounting for 644 projects or 28.9 per cent of the total at the time of writing.¹³² The next biggest developed country investor in CDM projects is another big global financial centre, Switzerland, with 462 or 20.7 per cent of the total at the time of writing. These projects are not necessarily offsetting emissions from the UK. Rather the UK is just the host country for purchase of the credit from the CDM project. The credit may then be sold on to emitters or purchasers in other countries.

In fact, according to the UK Financial Services Authority, the vast majority of UK firms participating in the carbon market are doing so for reasons other than to comply with emissions reductions obligations: "Many FSA-authorized firms are involved in the emissions markets, including brokers, funds, institutional investors including pension funds, commodity trading advisors, electricity generators, and other physically-exposed hedgers. As a proportion of the total, only very few of these FSA-authorized emissions market participants actually have a UK-imposed emissions reduction requirement but are active in the market to offer services to clients, products to investors or purely to generate revenue. For example, investment banks have in general, played a significant role in providing funding to the emissions market and, as such, have a significant impact in the market."¹³³



ON ALL COUNTS THE FACTORS ABOVE SUGGEST THAT CARBON TRADING AS IT CURRENTLY EXISTS IS DAMAGING, INEFFECTIVE AND FUNDAMENTALLY FLAWED AND THAT SEEKING TO REFORM IT IS A WASTE OF PRECIOUS TIME AND ENERGY IN THE FACE OF THE URGENT THREAT OF CLIMATE CHANGE.

the fundamental reforms to existing emissions trading schemes identified above would likely be met with major resistance and would have only very limited chances of success in practice.

Similarly, it can be argued that suggesting that new emissions trading schemes could be put forward which avoid the most damaging aspects of existing schemes and have a better chance of effectively reducing emissions is a somewhat academic exercise. The fact is that most of the new schemes being proposed look likely to be as damaging if not more damaging than existing schemes, indicating that the same political forces and interest groups are at work influencing the development of schemes in the pipeline.

The future of emissions trading: the question of timing

A final factor which needs to be considered when assessing the ability of carbon trading to deliver emissions reductions needed to avoid catastrophic climate change in a just and equitable way is the question of the time available. As we have highlighted at the beginning of this report, global greenhouse gas emissions must peak and start to decline within the next six years if we are to have a reasonable chance of avoiding catastrophic climate change,

Time is therefore of the essence and the history of emissions trading schemes suggests that they are likely to fail on this front as well. The EU ETS has been operational since 2005, and although it is now in its second phase, the framework for Phase III has been put in place and, despite awareness of the major shortcomings of Phases I and II, these have still not been addressed in Phase III. It therefore looks highly unlikely that there is time to get the system right and working effectively in the time that we have available. Similarly, based on the experience of the EU ETS, the likelihood of establishing new national emissions trading schemes elsewhere in time to deliver the urgent emissions reductions needed looks very small.

This issue of a fundamental lack of time applies equally to proposals for the establishment of a global emissions trading system as put forward by the European Union and

the UK Government. The roadmap for the development of such a system as set out in the report by Mark Lazarowicz¹³⁴ envisages the first step in the establishment of a global scheme – the linking of the EU and US emissions trading schemes – as taking place in 2015, the year that global emissions need to peak. This raises questions as to the core purpose of the proposed scheme, as it clearly cannot be to deliver the necessary emissions cuts to avoid catastrophic climate change.

It can therefore be concluded that the chances of achieving the fundamental reforms to existing and new emissions trading schemes to make carbon trading work effectively in delivering the necessary emissions reductions in a fair and effective way look slim at best, and more realistically, likely to fail totally. Furthermore, in the highly unlikely event that such reforms were theoretically possible, the time it would take to make these reforms and expand the carbon trading system globally is simply too long for trading to be relied upon as the core mechanism to deliver the necessary emissions cuts. On all counts the factors above suggest that carbon trading as it currently exists is damaging, ineffective and fundamentally flawed and that seeking to reform it is a waste of precious time and energy in the face of the urgent threat of climate change.

ALTERNATIVES TO CARBON TRADING

Part A: Overall approach to bringing down emissions – focus on simple, direct and proven policies

A growing body of experts from diverse backgrounds now believes we need much more direct interventions in response to the global climate crisis.¹³⁵ The scale of the challenge and limited time in which we have to achieve it mean that we cannot rely on high risk, indirect methods for reducing emissions. Policy specialists including climate scientists and economists are calling for significant and direct government intervention at the national, regional and international level to bring about the changes needed to avoid catastrophic climate change. It is argued that this intervention should focus on delivering the structural transformation of national economies and their global linkages in order to reduce dependency on fossil fuels, ie direct intervention to decarbonise the economy.

This preference for direct intervention over indirect policies such as the use of carbon trading is highlighted in the critical paper 'How to get climate policy back on course' by Professor Gwyn Prins of the LSE and 13 UK academics, published in July 2009 under the auspices of the Institute for Science, Innovation and Society at the University of Oxford and the MacKinder Programme for the Study of Longwave Events at the London School of Economics. The paper recommends focusing on the causes instead of the consequences of excessive reliance on fossil fuels, and asserts: "If countries really aspire

to cut emissions, we suggest that the motor of an effective mechanism is a direct approach to the decarbonization of the global energy system, rather than an indirect approach via manipulation of the economy."¹³⁶

The paper also asserts that, in contrast to relying on new, elaborate and untested approaches such as the establishment of a carbon market, we need to focus on tried and tested policies that we know have worked in the past: "We should switch decisively to a radically different but also very familiar approach to policy which focuses upon actions that have worked in the past and which we know to be politically feasible."¹³⁷

Historical evidence, past experience

As highlighted by the influential US think tank the Breakthrough Institute, all of the big historic successes in decarbonising economies have focused on such tried and tested direct mechanisms to deploy sources of energy needed, as opposed to indirect incentives to shift from one energy source to another. They have also all had a big focus on direct public investment in those policies.¹³⁸ The Breakthrough Institute's Michael Shellenberger and Ted Nordhaus argue that that there is no precedent for switching energy sources by making incumbent sources more expensive, ie through the use of a price mechanism. Rather, all of the historic examples of big energy switches by national economies have involved the combination of big public investment with direct deployment of new technologies as set out above. Examples include France – the economy which has decarbonised the most rapidly over the last 30

years – where the government has designed, built and operates nuclear power stations; Sweden, where there has been a big government-driven expansion of publicly-funded nuclear and hydro-electric power; and Japan, Iceland and Denmark where there has been significant government support for nuclear and solar, geothermal and hydro-electric, and offshore wind power respectively.¹³⁹ While a life-cycle assessment raises major questions as to whether nuclear energy can be considered low carbon, the main point is that direct government intervention successfully delivered big switches in national energy sources.

The policies which could be mobilised in a more direct approach to decarbonisation are already in use – taxation, regulation and direct public investment are all tools that are employed by governments in a wide range of areas. There are hundreds of historic examples of their successful application to environmental questions, and it is this set of tools, not indirect mechanisms, which most Western governments have employed in response to the banking crisis, directly intervening with public funds to bail out banks in trouble combined with proposals for new regulations with the intention of warding off a repeat of the crisis in future. The United States alone has committed US\$700 billion in public funds to stabilise its banking system since the beginning of the banking crisis.¹⁴⁰ This and similar efforts by other developed nations have demonstrated their ability to mobilise significant funds when the political will exists to do so.

A global Green New Deal

Many proposals for the specific application of these tools to facilitate climate mitigation and the switching of industrialised economies onto more low-carbon pathways have already been developed, including in much of the recent literature calling for a climate-conscious response to the global economic crisis. The proposal for a Green New Deal, for example, “entails reregulating finance and taxation plus a huge transformational programme aimed at substantially reducing the use of fossil fuels and in the process tackling unemployment and decline in demand caused by the credit crunch.”¹⁴¹ Its key recommendations include structural transformation of the regulation of national and international financial systems, major changes to taxation systems, and a sustained programme of investment and deployment of energy conservation and renewable energies.

Alternative tools

How each of these tools might now be employed by governments with the aim of reducing carbon emissions, and some of the advantages and disadvantages of each are explored briefly below.

Taxation

Taxation is often cited as an alternative to carbon trading. As an indirect mechanism which relies on changing behaviours by altering the price of carbon, it can be argued that some of the problems associated with carbon trading also apply to a carbon tax. Taking into account the current stage of development of low-carbon alternative technologies and the very high price of carbon needed

in order to make them competitive, it is unlikely that taxation alone will deliver the major structural changes that are needed in industrialised economies in the time available to us. The introduction of a carbon tax high enough to have major and immediate impacts on carbon emissions without additional public support for research, development and deployment of alternative low-carbon technologies would be likely to provoke major discontent as businesses pass price rises onto consumers, leading to major hikes in the cost of goods and services.

However, while taxation alone is unlikely to deliver emissions reductions, there is growing support for a role for it in climate mitigation. Furthermore, experience from the application of tax instruments to deal with other environmental issues such as landfill, as well as directly to tackle climate emissions, shows that if well targeted and with an escalator, taxation can help to shift behaviour. One such example of the successful application of a carbon tax to incentivise energy efficiency and drive emissions reductions is the UK Climate Change Levy (CCL), a tax on energy delivered to non-domestic users, including those in industry, agriculture and public administration. Introduced in 2001 through the Finance Act 2000, despite significant watering down through negotiated agreements with businesses, the CCL has generated emissions reductions in the sectors covered. According to a report by the UK National Audit Office (NAO), the Levy has driven energy efficiencies and emissions reductions relative to business as usual in both energy-intensive and less intensive industries. Although, according to the NAO, the cumulative carbon savings

achieved by the Levy across the economy cannot be measured, only estimated, “the balance of qualitative evidence broadly supports the major assumption which underlies the most recent estimate of annual savings of 3.5 MtC [million tonnes of carbon] in 2010.”¹⁴²

Taxation has two main advantages over trading as a means of delivering reductions in carbon emissions. First, it provides a more predictable price impact than do carbon trading systems. As explored above, the latter tend to aggravate price volatility because of the predominance of speculative transactions in the carbon market. The price stability offered by carbon taxes is argued to offer more encouragement to longer-term investment decisions in low-carbon infrastructure than does emissions trading. According to the UN 2009 Social and Economic Survey: “By increasing the cost of emissions to private parties in a more predictable manner than cap and trade, carbon taxes provide the opportunity to both raise public revenues and mitigate climate damage by increasing the cost of emissions to private parties.”¹⁴³

The second major advantage of taxation over trading is that taxation instruments are simpler and therefore easier to design and implement. This is a very significant benefit given the extremely limited timescales in which we must achieve real reductions in carbon emissions to avoid catastrophic climate change. It is argued by some that the relative simplicity of taxation instruments compared to trading, and the transparency and ease of understanding that this facilitates, means that taxation provides less opportunity for manipulation and watering down by special interests.

Any government intervention is subject to lobbying and influence by powerful interest groups, and the experience of the UK Climate Change Levy shows that taxation is no exception.¹⁴⁴ However, there is no doubt that, because of its relative simplicity and therefore transparency, the CCL and its strengths and weaknesses are far more open to scrutiny by civil society than the workings of the EU ETS.

Whilst many countries have fuel taxes in place to provide revenue for central government budgets, the only countries which currently have a carbon tax in place with the specific objective of delivering reductions in carbon emissions are in Scandinavia. Sweden has had such a tax in place since 1991 and the country's Ministry of Finance predicts that emissions in Sweden would be 20 per cent higher without the tax.¹⁴⁵ However, a number of other countries in Europe are considering the introduction of a carbon tax. France is likely to be the first big European country to introduce such an instrument after proposals were announced by President Sarkozy in September 2009.¹⁴⁶

The two main disadvantages of carbon taxes are, first, their potential to generate political resistance as highlighted above, and second, their potentially disproportionate impact on poor households and therefore the possibility of a regressive impact on income levels across an economy overall. The issue of political resistance has been successfully addressed through the use of an escalator – which gradually increases the tax over time. The significant impacts of Sweden's carbon tax are no doubt the result of the relatively high level at which it is set – currently €128 per tonne of CO₂. When introduced in 1991 the tax was at the

CARBON TAXES HAVE LIMITED BUT SIGNIFICANT POTENTIAL AS A TOOL FOR NATIONAL GOVERNMENTS TO BRING DOWN EMISSIONS. FURTHERMORE, CARBON TAXES CAN PROVIDE AN IMPORTANT REVENUE STREAM FOR GOVERNMENTS TO INVEST IN THE TRANSFORMATION OF PUBLIC AND ENERGY INFRASTRUCTURE.

far lower rate of €28 per tonne of CO₂.¹⁴⁷

The issue of potentially regressive impacts on incomes are set out by the 2009 UN Social and Economic Survey: "Carbon pricing will affect the level and distribution of real household income, both directly through a household's use of fossil fuels and directly through the prices of other commodities. A carbon tax has been found to place a disproportionately heavy burden on low-income groups in some contexts, by raising not only the direct cost of energy but all final prices for goods in which energy has been used. In such cases lower-income households would pay disproportionately more in environmental compliance costs."¹⁴⁸

However, there are a number of ways to mitigate these impacts, including through differentiated taxation, ie increasing prices commensurate with levels of income or the amount of energy used, or by compensating low-income groups. France's proposed carbon tax for example, due to be introduced in January 2010, will be levied at a rate of €17 per tonne of CO₂. However, its aim is not to generate revenue but to incentivise reductions in emissions, and as a result the tax is planned to be fiscally neutral. The French

Government plans to compensate households through an income-tax deduction worth €112 per year for a family with two children living in a town. There will be additional compensation for farmers, fisherfolk and people who live in the countryside with less access to public transport.¹⁴⁹

Overall therefore, it can be argued that carbon taxes have limited but significant potential as a tool for national governments to bring down emissions. Furthermore, carbon taxes can provide an important revenue stream for governments to invest in the transformation of public and energy infrastructure (see part C below). Certain people and institutions, including the International Monetary Fund, have advocated in the past the implementation of a global carbon tax. However, the United Nations warns that such proposals should be treated with caution because of, amongst other things, the potentially regressive impacts on developing countries. The possibility of negotiating and implementing a global tax regime and for that tax regime to take effect within the times we have to achieve a peak and decline in emissions is highly unlikely. Any such undertaking would therefore likely be another highly dangerous distraction from the real task of reducing global emissions. Rather, the effort to explore and deliver taxation instruments should come primarily from national governments and regional institutions such as the European Union.

Regulation

There is a major and as yet significantly under-employed role for the use of more traditional types of regulation based on models we know work, such as standard setting for dirty industries, to drive reductions in carbon emissions in industrialised economies. The crucial role for regulation in climate mitigation is highlighted by Stern in his critical review on the economics of climate change, where he argues that “carbon pricing alone will not be sufficient to reduce emissions on the scale and pace required”¹⁵⁰ and points to the critical role for regulation such as “forward-looking standards to stimulate innovation by reducing uncertainty for innovators; encourage investment by increasing the costs and commercial risks of inaction for firms; and reduce technology costs by facilitating scale economies.”¹⁵¹

The term ‘command and control’ is often used to describe direct regulatory approaches such as

THE TERM COMMAND AND CONTROL ILLUSTRATES THE KEY ATTRIBUTES THAT TRADITIONAL REGULATORY APPROACHES HAVE IN THE CONTEXT OF THE URGENT NEED TO AVOID CATASTROPHIC CLIMATE CHANGE – THEY INVOLVE THE DIRECT DEPLOYMENT OF GOVERNMENT POWER TO CONTROL HARMFUL ACTIVITIES AND CHANGE BEHAVIOURS.

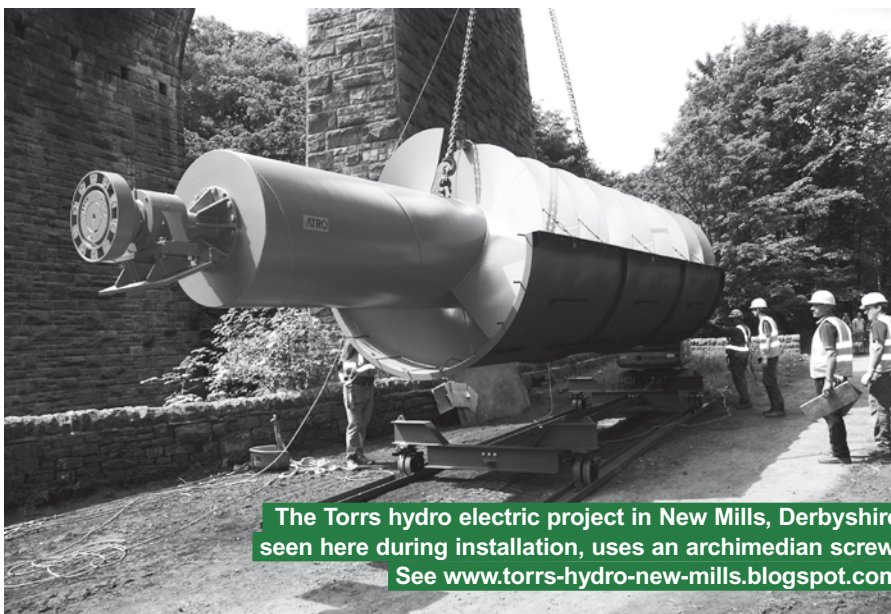
standard setting, generally by those with a vested interest in a more free-market approach in an attempt to delegitimise direct government intervention in the economy in the public interest. However the term command and control illustrates the key attributes that traditional regulatory approaches have in the context of the urgent need to avoid catastrophic climate change – they involve the direct deployment of government power to control harmful activities and change behaviours.

There are many examples of the successful use of standard setting to drive behaviour change, including the EU’s Large Combustion Plant Directive (LCPD). This involves a non-tradable, plant-level approach to phase out dirty industry, starting with a non-tradable cap on emissions, and an option for plants to opt-out if they cannot achieve this which in turn will lead to the closure of a number of coal-fired power stations across Europe.

Another EU law on industrial emissions, the IPPC directive, incorporates the principle of Best Available Techniques (BAT). This allows emissions limits set by the directive to be determined according to the best techniques and technologies that are reasonably achievable and available to the polluting industries covered by the regulation at a reasonable cost. The BAT principle allows for standards in the industry to be determined by the most progressive firms from an environmental perspective. It is therefore highly progressive and rewards best practice.

A similar principle underlies Japan’s Top Runner Programme, a regulatory scheme designed to drive continuous improvement in the energy efficiency of products, including household appliances and vehicles. The scheme covers manufacturers and importers of products, and it undergoes continuous revisions, allowing for the continuous introduction of new product-specific energy performance requirements dependent on the best available technology at the time of the revision.¹⁵²

There are diverse options for regulations to bring down emissions and it is likely that a variety will need to be developed and deployed. These



The Torrs hydro electric project in New Mills, Derbyshire seen here during installation, uses an archimedian screw. See www.torrs-hydro-new-mills.blogspot.com

should include higher standards for heavily-polluting industries, setting new fuel efficiency standards, the introduction of feed-in tariffs where they are not already used, and restricting or banning the most energy-inefficient products and production processes.

Publicly-funded investment

The urgent need for dramatic increases in public investment to address the climate crisis is now widely acknowledged, including by Lord Nicholas Stern in his above-cited review of climate change economics, as well as the numerous proponents of a green fiscal stimulus package in response to the economic crisis.¹⁵³ Stern highlighted the major difficulties in financing the structural economic changes that need to take place through the capital markets and highlighted the role for major increases in levels of public spending on, for example, research, development and deployment (RD&D) incentives to overcome market failure.

The growing calls for a Green New Deal are inspired by the wide-ranging series of programmes launched by US President Franklin D. Roosevelt during the worldwide economic depression triggered by the stock market crash of October 1929 which lasted into the Second World War. Roosevelt's New Deal programme aimed to provide employment and social security, reform tax policies and business practices and stimulate the American economy out of the depression. It involved a massive increase in public investment in the construction of homes, hospitals, schools and other public buildings, as well as roads, dams and electric grids. Proponents of a Green New Deal argue that public investment of a similar scale and

IN THE UK, LESS THAN 0.2 PER CENT OF GOVERNMENT SPENDING IS DIRECTED TO INITIATIVES TO SUPPORT THE DECARBONISATION OF THE ECONOMY, LESS THAN IS SPENT ANNUALLY ON THE RUNNING OF OUR NATIONAL LOTTERY.

level of ambition is urgently needed to address the climate crisis and provide some of the heavy lifting in industrial and public infrastructure that is required.

In the UK, less than 0.2 per cent of government spending is directed to initiatives to support the decarbonisation of the economy, less than is spent annually on the running of our National Lottery.¹⁵⁴ The United Nations Environment Programme (UNEP) has questioned whether what emerges after the global recession will be “a resurrected “brown economy” with its traditional dependence on low energy efficiency, non-sustainable energy sources, high materials use, unsustainable use of our ecological commons and a high degree of climate risk.”¹⁵⁵ According to UNEP and others, avoiding this resurrection of the brown economy will require the deployment of a truly green fiscal stimulus package involving major public investment prioritised in renewable energy; energy-efficient buildings, public housing and truly effective measures to tackle fuel poverty; and public infrastructure, including sustainable transportation. While no one thinks that public finance can deliver everything, campaigners are increasingly in agreement that public finance must be the lever that delivers the shifts we need to see.

1. Technology

We cannot rely on technological fixes to the climate crisis and unsustainable consumption in the global North must be addressed, for equity purposes as much as tackling existing levels of emissions. However, it is clear that technology is still going to have to do the heavy lifting in the switch to low-carbon economies in developed and developing countries – a second industrial revolution is needed. As explored earlier in this document, while significant numbers of alternative low-carbon technologies are available, few of these are currently cost competitive with their high-carbon equivalents or ready for mass deployment. Experience shows that carbon trading isn't delivering adequate research, development and deployment (RD&D). Rising to the challenge of the climate crisis therefore necessitates a step change in levels of RD&D for low-carbon technologies and public funding has a crucial role to play in bringing forward a portfolio of such technologies and stimulating greater private sector involvement. It is also critical that patenting laws are reformed and intellectual property rights reduced so that when technological advances are made these can be shared and disseminated as rapidly as possible.

As highlighted by the Green New Deal group, all big new technological transitions have required significant government support.¹⁵⁶ The development of nuclear power in particular was financed through significant public spending, and similarly the internet was originally developed and funded by the US military. However, global spending on energy R&D has fallen after the fuel price shocks of the 1970s, and the International Energy Agency suggests that governments

should double their spending. Lord Stern calls this ‘an appropriate first step’ and advocates an increase in public funding for low-carbon technology RD&D of two to five times.¹⁵⁷

A number of specialists advocate focusing spending on the heaviest energy-using sectors first,¹⁵⁸ the opposite approach to carbon trading. This would mean a focus on electricity generation, ie on the decarbonisation of the energy supply and the expansion of renewable energy, as well as other heavy industrial-energy users such as iron, steel and aluminium production, focusing directly on improvements to energy efficiency and carbon intensity. Such direct government intervention through generous subsidies for RD&D is already yielding big benefits in a number of developed countries, for example a large increase in the use of different renewable technologies in Japan and California.¹⁵⁹ China is also investing heavily in low-carbon RD&D and commentators predict that it could soon be a world leader in the manufacture of green technologies.

2. Domestic energy efficiency

Serious investment is also needed in improving domestic energy efficiency and helping to tackle fuel poverty. This requires a mix of policies including tough standards for the building trade, combined with the injection of significant finance to fund improvements to public housing and other public buildings and provide financial incentives for a similarly wide take-up in private housing. In the UK the domestic sector accounts for 27 per cent of all emissions. Here, Friends of the Earth has advocated the creation of a one-off £5 billion fund to kick-start a massive programme of energy efficiency and to help tackle fuel poverty, combined with further funding of at least £1 billion a year subsequently.¹⁶⁰

3. Transport

The transport sector is a third priority for public investment in decarbonisation, specifically in advancing integrated land-use planning to reduce the need to travel and in improving alternatives to motoring, including increasing the quality, affordability and availability of public transport and providing safe walking and cycling conditions. All this requires major capital investment, yet transport spending in many countries is still dominated by spending on carbon-intensive road building.

4. Procurement policy

Finally, procurement policy is a significant tool governments can use to deploy public spending in the interests of decarbonisation. Modernising public procurement not only helps to bring down emissions directly, it also helps to further stimulate innovation and bring down the prices of low-carbon technologies. Public sector procurement can be re-orientated to tackle climate change in numerous ways, including improvements to heating, electricity generation, building construction and refurbishment, transport vehicles and fuels.

Approaches to policy-making

New approaches to policy making are also essential if the policies described above are to be made effective in delivering emissions reductions in a just and equitable way. There is a need for far greater openness and transparency in decision making and must greater involvement of a wider range of interest groups in policy formulation. Excessive access to and influence over decision makers by powerful economic interest groups must be balanced by an increased

role for academics, policy specialists and other interest groups, civil society organisations, and the general public. Increased openness and robust, inclusive, public discussion is also essential in the international arena, where currently the negotiating space is restricted to a few elite countries and people. Policies to tackle climate change must also look at small-scale community-level initiatives which are already taking place and seek to support and scale these up.

Finally, efforts are also needed to ensure a ‘just transition’ to low-carbon economies. It is likely that many of the policies examined above, if implemented, would lead to job creation. However, it is critical that governments play a proactive role in ensuring that job-creation opportunities from these policies are maximised, that any job losses resulting from the transition are minimised, and that change within economic sectors does not occur at the expense of decent work and decent terms and conditions for workers, as highlighted in the UK Trade Union Congress (TUC) paper on a Just Transition.¹⁶¹ It is also essential that appropriate measures are taken early to mitigate or prevent any negative impacts on low-income groups, and to ensure that policies implemented to support decarbonisation do not exacerbate poverty or increase inequality.

Part B: Beyond direct decarbonisation – addressing global inequity and unsustainable consumption

Although the tried and tested policies explored above have a critical role to play in delivering emissions reductions and shifting economies in the global North and the global South onto more sustainable low-carbon pathways, they fail to take into consideration two other critical parts of the global picture of climate change: questions of global inequity and unsustainable consumption.

Addressing global inequity

The first missing part of the picture is the responsibility of developed countries for the majority of global emissions historically. This, combined with the historic and ongoing net transfer of resources from South to North, locks developing countries into underdevelopment and denies developing-country governments the means of adequately delivering poverty reduction and real low-carbon development.

Carbon trading would serve to exacerbate this global inequity. Any comprehensive and just approach to bringing down emissions globally must be grounded in the analysis above and provide solutions that address these structural injustices. The more direct tools examined above provide a preferred approach for governments in delivering emissions cuts and structural changes to their domestic economies. Yet tackling climate emissions globally also necessitates policies that address the unequal

distribution of the means to tackle climate change, ie efforts to stem the flow of resources from South to North and ensure developing countries have adequate resources to pursue low-carbon development. As part of this, developed countries must provide reparations to developing countries for their disproportionate historical responsibility for creating climate change – the ‘climate debt’ owed by the developed world to the developing countries in the global South.¹⁶²

Policies to address this unequal distribution of resources and ensure developing countries have the means for low-carbon development which also delivers on poverty reduction are examined briefly below.

Direct financial transfers

The United Nations Development Report 2007/2008 estimates that US\$86 billion a year by 2015 – 0.2 per cent of developed country GDP or around a tenth of their current military spending – is needed by developing countries to adapt to climate change.¹⁶³ Additionally, hundreds of billions of dollars in finance are needed yearly to support developing countries in reducing their emissions and making a just transition towards low-carbon economies.

Developed countries must provide the bulk of the financing needed because of their historical responsibility for the majority of global CO₂ emissions. However, developed countries are largely shirking their responsibilities. They are offering inadequate amounts of money; and they are using illusory tactics – such as double counting the use of Official Development Assistance (ODA) obligations and the use of offsetting to meet their emissions reductions

obligations – as steps to meet their commitments on providing finance to developing countries.

Many developed countries are pushing for funds to support mitigation and adaptation by developing countries to come from the global carbon market and be managed by the World Bank. This multilateral lending institution has a terrible track record in terms of the social and environmental impacts of its lending policies. It also has a major conflict of interest as the largest multilateral lender for fossil fuel projects in the world (the World Bank Group’s fossil fuel financing totaled \$2.275 billion in 2008¹⁶⁴); and it is an inherently undemocratic institutional structure with a one dollar-one vote decision-making process that marginalises Southern countries. It is therefore a wholly inappropriate institution for administering the distribution of climate funds. Critical issues which are already apparent with its proposals for Climate Investment Funds (CIFs) include:

- They undermine the UNFCCC process by setting up an unequal aid framework of donor and recipient rather than treating climate financing as the binding obligation of Annex I countries as it is regarded under the UNFCCC and Kyoto Protocol
- They compete for funding with already established UN adaptation and technology funds
- They promote dirty industries like coal as clean energy
- They force developing countries to pay for the developed world’s pollution by providing loans for them to adapt to the climate crisis, increasing their overall debt burden – a process which runs counter to efforts to reduce poverty and vulnerability to climate change.

It is critical that the international community recognises the principle of responsibility of developed countries of the global North to repay the climate debt owed for their disproportionate contribution to historic emissions and the disproportionate suffering faced by populations in developing countries from the impacts of climate change. Developed countries must fulfill their commitment in the UNFCCC to finance climate mitigation and adaptation in the developing world, and do this through funding mechanisms that are designed and implemented within a multilateral framework that is genuinely representative of both developed and developing countries. As the UNFCCC is the main international framework and is guided by multilaterally negotiated principles, financing for meeting climate change commitments must be located within this framework. It is also essential that there is strong and central involvement of communities at all stages, particularly in defining the activities for which climate finance must be allocated.

Other key ethical and operational criteria for international climate finance include:

- **Additionality:** Climate finance must be sufficient, new and additional to existing Official Development Assistance (ODA) obligations, without generating a debt for Southern countries.
- **Respect for human rights:** The design and implementation of mitigation, adaptation and resilience-building projects, programmes and practices must ensure respect for human rights and fundamental freedoms. In particular the “free, prior and informed consent” of Indigenous Peoples and local communities as enshrined by the

UNDRIP (UN Declaration on the Rights of Indigenous People) must be implemented.

- **Reliability:** Finance sources should be reliable and not subject to volatility risks.
- **Focus on social and environmental outcomes:** Economic efficiency should be subordinated to social and environmental requirements, and only valid for comparing different options that have no relevant negative impacts. Therefore it should only be applied as a secondary criterion.
- **Enforceability:** Enforcement mechanisms are needed both for contributions from wealthy developed countries and for the implementation of funds by Southern countries to ensure that obligations are honoured.

Technology transfer and reducing intellectual property rights

Historic uneven development – combined with the rigorous defending by developed countries of intellectual property rights in order to secure the highest levels of return for companies developing new technologies – has meant that the vast majority of new low-carbon technologies are produced by firms located in the rich, developed world and are unaffordable for many developing countries. Adequately addressing emissions cuts globally necessitates large-scale technology transfer in environmental goods and services to developing countries, including renewable energy technologies; low-carbon vehicles; public transport equipment; energy- and resource-efficient production processes; construction materials and designs; waste treatment facilities; recycling technologies and ‘soft

technologies’, for example knowledge, systems and management processes. This technology transfer in turn requires a significant reduction in the protection of intellectual property rights through changes to global trade rules and multilateral and bilateral trade agreements. It is not enough to let technology transfer depend upon the will and generosity of corporations which own patent rights to share technology and know-how.

Stopping unfair trade and investment policies

As highlighted in a recent report on trade and climate change by the global trade justice network Our World Is Not For Sale (OWINFS), the neoliberal economic development model stands in the way of a swift and effective response to climate change. According to OWINFS: “International trade and investment agreements are a driving factor behind the growth of energy-intensive industrial sectors, the continued extraction and processing of fossil fuels, and the expansion of intensive agriculture. These carbon-hungry activities also contribute to the relentless destruction of climate-regulating forests; and international transport is responsible for a significant chunk of annual greenhouse gas emissions.”¹⁶⁵

A number of countries are pursuing changes to trade rules in the World Trade Organisation (WTO) which would further liberalise energy services and place constraints on the ability of governments to use national laws to shift to more sustainable energy sources. A major refocusing of trade and investment rules and policies is needed globally to ensure that climate mitigation and adaptation, combined with poverty eradication

and sustainable development in poor countries, is prioritised over the simple expansion of global trade and investment as an end in itself, a process which has contributed significantly to perpetuating levels of underdevelopment in developing countries as well as to climate change.

Unconditional cancellation of unjust foreign debt

Although some limited progress has been made on the cancellation of unjust poor country debt, the world's poorest countries still pay almost US\$100 million every day to the rich world. The poorest 49 countries have total debts of US\$375 billion, and for the poorest 144 countries, it is over US\$2.9 trillion.¹⁶⁶ Much of this debt is still left over from the irresponsible lending by developed countries to the developing world in the 1970s. Repayment by developing countries of these debts to developed world governments and international institutions soaks up much-needed government revenue which could otherwise be put towards poverty reduction and sustainable development goals. Developing countries pay at least US\$30 billion per year in debt interest repayments.¹⁶⁷

There must be 100 per cent cancellation of unpayable and unjust debts – those that countries simply cannot afford to pay whilst at the same time meeting the most basic needs of their populations, and those that were given on unfair terms or knowingly given to failed projects or dictators. At least US\$400 billion in debt relief is needed immediately to enable developing countries to meet the United Nations Millennium Development Goals.¹⁶⁸

A new development paradigm

The current development paradigm being promoted by international institutions and developed country governments continues to be one of export-led growth, focusing on the expansion of sectors producing commodities for export like basic raw materials, simple manufactured goods and industrial agriculture. This approach destroys sustainable livelihoods, often contributes to poverty rather than alleviating it, and actively contributes to the problem of climate change.

The expansion of industrial agriculture is, for example, one of the driving forces behind climate change. High inputs of energy, fossil fuels and fertilizer, industrial meat production as well as large-scale deforestation to grow agricultural commodities mean industrial agriculture is now responsible for at least 30 per cent of global emissions. When taking into account the global transportation and processing of food, estimates suggest that food could be responsible for up to half of global greenhouse gas emissions. At the same time, with over a billion people – largely poor farmers – hungry this year and half a billion people globally facing an obesity crisis while food corporations report billions in profit, it's clear that the current model is not providing livelihoods or feeding those that need it the most either. Climate change will also have huge impacts on our ability to grow food, most of which will be felt in the developing world where food production is set to drop by more than a fifth. If we are to feed the world and address climate change the global food system needs to change dramatically.

Yet many of the solutions being proposed by developed country

governments and agribusiness in the UN climate talks, such as intensification of meat and dairy production and genetic modification mean more of the same. These false solutions will entrench industrial agriculture, as well as lock us into ever-rising emissions and decreasing control over food production systems.

Real solutions do exist. For hundreds of years, small-scale peasant agriculture has developed incredibly sophisticated agro-ecological methods of farming that work along with nature rather than against it. These methods have been proven to increase yields by up to 90 per cent while raising incomes with low-cost, locally available and appropriate technologies. Small-scale farming can also reduce emissions by using practices that store CO₂, reduce considerably the use of energy on farms, prioritise local food production and move to sustainable livestock production and consumption. A four year assessment of global agriculture – sponsored by the UN, World Bank, World Health Organisation and conducted in the name of 58 countries – recognised the damage caused by industrial agriculture and last year called for a move towards sustainable, integrated production methods.

The scale of change needed necessitates an alternative development paradigm capable of delivering real poverty reduction and sustainable development in a carbon-constrained world. It requires political commitment from governments to put power in the hands of small food producers rather than corporations. It also requires efforts to tackle deforestation more widely, which itself accounts for one quarter of global carbon emissions according to the UN's Food and Agriculture

Organisation. Tackling the drivers and underlying causes of deforestation is essential if we are to avoid dangerous climate change whilst safeguarding the rights of forest dwellers and Indigenous Peoples. This necessitates not only tackling the expansion of unsustainable and destructive plantation agriculture, including for biofuels, soy and genetically-modified trees, but also support for community-based forestry projects that protect the customary land rights of forest communities and Indigenous Peoples.

Addressing unsustainable consumption

The people in the rich countries of the world use far more of the world's resources than those in poorer countries, and this resource use continues to increase, with environmental, economic and social impacts.¹⁶⁹ This unsustainable and inequitable resource use needs to be addressed. As a first step countries and regions (such as Europe) should start to measure what resources they use – in terms of materials, land, water and carbon emissions, including those generated in the production of imported products. Developed countries must then set targets to reduce this resource use, and put in place policies to achieve this.¹⁷⁰ At the moment even the most basic aspects of resource wastage are not being adequately addressed. For example, Europe is landfilling and burning over €5 billions-worth of resources every year,¹⁷¹ with only a few regions having laws in place to prevent this.

Part C: How to pay for it – funding sources for decarbonisation in the North and South

Taxation as a source of climate finance

There is growing support for the use of hypothecated carbon taxes, ie the use of a carbon tax to generate revenue specifically for public investment in reducing carbon emissions. The taxation revenue is therefore ring-fenced for climate mitigation purposes, for example for RD&D of alternative low-carbon technologies, or for direct investment in energy efficiency measures and a shift to low-carbon infrastructure and services such as public transport. In the UK a number of economists and climate change specialists favour a hypothecated carbon tax as a minimal price to the EU ETS for investment in primary research in low-carbon technology and its development and deployment.¹⁷² Internationally, the United Nations asserts: “Carbon taxes will not provide an unlimited source of funding and will drop off as greenhouse gas emissions are effectively reduced to low levels, but in the initial stages, they may play an important role in sourcing a substantial part of the investment costs of the big push that needs to be accomplished in coming decades.”¹⁷³

The United Nations Development Programme estimates that a US\$20 tax per tonne of CO₂ in OECD countries at current emissions levels could generate US\$265 billion annually,¹⁷⁴ whilst a US\$7 levy per passenger on international flights alone could generate US\$14 billion

per year. A more recent United Nations report asserts that a tax of US\$50 per tonne would make many renewables economically viable and could mobilise US\$500 billion in resources annually.¹⁷⁵

Proposals have been put forward for other types of hypothecated taxation to generate government funding to support climate mitigation. These include a windfall tax on oil and gas companies,¹⁷⁶ a Tobin tax¹⁷⁷ – a tax on cross-border capital transactions – and variants on these, including controls on speculation in energy markets.¹⁷⁸ All of these proposals would have the dual benefits of discouraging harmful behaviour while generating significant revenues for climate mitigation.

Other sources of government revenue

There is little doubt that the scale of the threat of climate change demands a major reprioritisation of public-finance priorities in developed-country economies. The first and most obvious step would be the reduction of perverse subsidies – government subsidies to fossil fuel-related projects which actually contribute to the damaging impacts of climate change. According to the United Nations Environment Programme, the International Labour Organisation and others, subsidies to fossil fuels and nuclear power globally have been estimated at US\$300 billion per year.¹⁷⁹

Removing these perverse subsidies for environmentally destructive activities is an obvious first step. However, given the threat posed by climate change to global public health and security, there is a very strong case for governments to go much further than this initial step

and redirect not only subsidies away from fossil fuel-intensive activities but also government revenues currently going to activities that are less of a priority than tackling climate change. The ability of governments to mobilise large sums of money in response to perceived threats to global stability has been evidenced by the response to the recent economic crisis and the billions of dollars made available to bail out the banks. Published in February 2009, the United Nations Environment Programme's Green New Deal agenda estimated the total planned global stimulus package in response to the economic crisis at around US\$2.5 trillion. However, very few of the stimulus packages on the table will, according to UNEP, deliver on the three Global Green New Deal objectives of creating employment opportunities and protecting vulnerable groups, reducing carbon dependency and furthering the Millennium Development Goals.¹⁸⁰

UNEP has called for around one third of the planned global stimulus package to be invested in greening the world economy.¹⁸¹ However, the scale of the climate threat and its implications, including to public health, security and the environment, suggests that governments should go further and redirect funding away from

THE ABILITY OF GOVERNMENTS TO MOBILISE LARGE SUMS OF MONEY IN RESPONSE TO PERCEIVED THREATS TO GLOBAL STABILITY HAS BEEN EVIDENCED BY THE RESPONSE TO THE RECENT ECONOMIC CRISIS AND THE BILLIONS OF DOLLARS MADE AVAILABLE TO BAIL OUT THE BANKS.

less significant strategic threats. For example, the UK Ministry of Defence budget for research and development of military equipment is £2.4 billion for 2008-09.¹⁸² In light of the scale of the climate threat there would appear a very strong case for redirecting a significant proportion of such government budget lines to support decarbonisation of the economy and reducing emissions.

Finally, there are many innovative proposals for additional methods of raising government revenue to support climate mitigation. These include a new generation of climate bonds raised by municipalities, national governments and international institutions, as proposed by the UK Green New Deal Group.¹⁸³ Whilst such tools represent borrowing from the future to pay for the present, mitigating against climate change – a threat which if not addressed will

impact disproportionately on future generations – is reason enough to explore such mechanisms further.

Knock-on benefits: job creation

Furthermore, while governments may be concerned about increasing national debt levels in the current economic climate, increased public investment and other government interventions to support transitions to low-carbon economies are likely to have significant knock-on economic benefits, notably job creation. As highlighted by Mathew Forstater, there is now significant evidence that environmental regulation very often generates employment.¹⁸⁴ This is further supported by the United Nations Environment Programme in its work on a global Green New Deal which points out that more than 3.8 million jobs could be created globally through the increased production of low-emission vehicles.¹⁸⁵ According to the UNEP research, similar job creation opportunities are provided by energy-efficiency measures such as retro-fitting of houses, while investment in urban public transport systems contributes secondary employment effects, with a multiplier of 2.5-4.1 per job created.

THE WAY FORWARD – CONCLUSIONS AND RECOMMENDATIONS

Carbon trading – fundamental problems and fatal flaws

The experience of existing emissions trading schemes, notably the EU ETS, indicates that carbon trading is failing according to the criteria set by its proponents. But as a mechanism for bringing down global greenhouse gas emissions it also has a number of other fundamental problems.

Against its own criteria, carbon trading is not achieving the promised emissions reductions, nor is it driving the major technological innovations that are needed to shift our economies to low-carbon paths. The first phase of the EU ETS failed and Phase II looks on course for a similar outcome. Furthermore, the perverse incentives created by the trading mechanism itself, ie the focus on low-cost solutions, are further locking us in to high-carbon pathways. In addition to these failures, there are further fundamental problems with relying on carbon trading as a mechanism for bringing down emissions globally.

Offsetting – a dangerous distraction

All existing and planned emissions trading schemes allow for the inclusion of offsetting, and to a great extent rely on the ability of firms to purchase offset credits to supplement their emissions allowances. Offsetting itself is profoundly unjust, fundamentally flawed and cannot be reformed. It will not deliver fair and adequate global emissions cuts in the time we have to make them because it allows developed countries to count cuts in developing countries towards their own targets. We need reductions in both developed and developing countries in order to achieve the necessary emissions reductions to avoid catastrophic climate change. Offsetting projects frequently do not deliver emissions reductions at all, are sometimes worse than doing nothing, and lock developing countries into high-carbon development pathways with minimal social and environmental benefits and, frequently, detrimental local impacts.

Speculation – the risk of carbon subprime

The complexity of the carbon markets and the involvement of financial speculators and complex financial products brings with it a risk that carbon trading will develop into a speculative commodity bubble which could provoke a global financial failure similar in scale and nature to that brought on by the recent subprime mortgage crisis, with major implications for the prospect of avoiding dangerous climate change if carbon trading is the primary means of delivering emissions reductions.

SUMMARY OF KEY FLAWS WITH CARBON TRADING

The report identifies six central problems with carbon trading, namely that it:

- a. Is ineffective at driving emissions reductions.
- b. Fails to drive technological innovation.
- c. Leads to lock-in of high-carbon infrastructure.
- d. Allows for, and relies on, offsetting.
- e. Creates a risk of subprime carbon.
- f. Provides a smokescreen for lack of action on climate finance by the developed world.

Carbon market finance – a smokescreen for inaction

Finally, carbon markets are failing to generate much-needed funds for mitigation and adaptation in developing countries. The prospect of increased carbon market finance is being used by developed countries to hide from their commitments under the United Nations Framework Convention on Climate Change to provide new and additional sources of finance to developing countries. Carbon market finance is not new and additional finance; counting it towards the commitments of developed countries is double counting.

Prospects for reform

It is possible to identify some changes to emissions trading schemes which would address some of the key flaws and fundamental problems with carbon trading and make it more effective at reducing emissions. However, in assessing the likelihood of such reforms being achieved, it is essential to consider the historical impacts of lobbying by interest groups on the establishment and development of emissions trading schemes, and the growing involvement of powerful industrial and financial actors with a strong interest in carbon markets.

Taking into account these historical impacts and the power of vested interests, it is clear that any attempts to fundamentally reform emissions trading schemes would probably meet strong resistance. The chances of achieving these reforms and addressing the fundamental problems with carbon trading look unrealistic.

Time and risk

The central role for carbon trading put forward by the European Union and the UK Government as a tool for delivering emissions reductions globally – already an impractical proposition – is further undermined once the time available to deliver these reductions is taken into consideration. Recent proposals from the UK Government for the expansion of global carbon trading envisage the first major step in this process – the linking of the EU and US emissions trading schemes – commencing in 2015, the year in which global greenhouse gas emissions must peak and start to decline if we are to avoid catastrophic climate change. It is therefore implausible that a global cap and trade system could be established within the time frames necessary, even if it could be agreed and made just, equitable and operationally effective.

In whose interests?

At least some of this misplaced enthusiasm for carbon trading can be put down to costs already paid – the UK and EU have invested significant time and energy creating an emissions trading system. They have a strong incentive to make it work rather than replace it, and to ensure that other parts of the world adopt compatible systems so that we don't have to start again from scratch.

However, the constituency of interest groups in industry and finance which helped to drive the establishment of the EU ETS and influenced its development is a significant driving force behind the enthusiasm of the UK and Europe for the expansion of carbon trading globally. The benefits of getting a head

start were openly recognised by UK business representatives themselves in a recent evidence session for an inquiry by the UK Parliament's Environmental Audit Committee. Louis Redshaw, Head of Environmental Markets Trading at Barclays Capital, the investment banking division of the UK-based major financial services provider Barclays, said:

“Like the UK led the way with the UK Emissions Trading Scheme and helped build capacity within the systems – ...accountants, lawyers, as well as trading companies and financial intermediaries – the European Emissions Trading Scheme has put Europe, and London as a consequence, at the centre of global emissions trading as the trend picks up.”¹⁸⁶

There can be little doubt that pressure from British and European industry to perpetuate the EU ETS and expand emissions trading globally is also a key factor behind the drive by the European Union and the UK Government to promote the establishment of a global emissions trading system.

An objective evaluation of the experience of emissions trading to date indicates that carbon trading as it currently exists is damaging, ineffective and fundamentally flawed. Seeking to reform and then extend it as the primary means of delivering emissions reductions globally is a waste of precious time and energy in the face of the urgent threat of climate change. In summary, the focus on carbon trading as the primary mechanism for tackling emissions is a highly dangerous obsession.

What now? Last throw of the dice

This report supports the central conclusion of the recent landmark policy paper 'How to get climate policy back on course' from the University of Oxford and the London School of Economics, that "one must not let dogmatism and the argument that there are sunk costs – financial and, even more importantly, political and psychological – drive policy to the exclusion of pragmatism... We should switch decisively to a radically different but also very familiar approach to policy which focuses upon actions that have worked in the past and which we know to be politically feasible."¹⁸⁷

As highlighted by climate economist Lord Stern, climate change is the greatest market failure the world has ever seen. Therefore relying on indirect, untested and unproven mechanisms such as carbon trading to correct this major threat to human health and security would appear gravely mistaken.

The significant risks of this over-reliance on indirect approaches like carbon trading are highlighted far and wide. According to Timmons Roberts and others at the Oxford Institute for Energy Studies: "...such market-based approaches remain very uncertain tools to address a problem of such magnitude as climate change. It is unrealistic to expect that a massive global 'public good' like avoiding climate change – where everyone benefits from its being addressed, but each have incentives to shirk responsibility – could be solved with market mechanisms alone."¹⁸⁸ Similarly, in a recent seminar in London the US Breakthrough Institute's Michael Shellenberger and Ted Nordhaus likened this situation to one where a government responds to

a war by proposing to put a market on it.¹⁸⁹

It is also critical to recognise that there is no single solution to reducing global greenhouse gas emissions that should be adopted in place of carbon trading as a priority focus for government policy makers. There are multiple tools available and we need to employ a range of them. The mix of direct and indirect, market and non-market mechanisms currently in use must be dramatically altered. Whilst there may be a role for market mechanisms at the right levels and within the right regulatory frameworks, the emphasis at this stage in the climate crisis must be on direct mechanisms, and ones which are as simple as possible and proven to work. Taxation, regulation and a dramatic increase in publicly funded investment must be deployed as a matter of urgency in order to deliver the emissions reductions needed.

Like all government interventions, these policies will also be subject to influence by actors with an interest in perpetuating high-carbon economic growth or false solutions such as carbon trading. However, the relative simplicity of these mechanisms compared with carbon trading allows for greater transparency and ease of understanding and therefore better scrutiny by the media and civil society. This in turn is likely to balance at least some of the excessive influence of powerful private interest groups. Carbon trading is inherently more susceptible to manipulation and watering down by vested interests because of its complexity and associated lack of transparency.

This need for more direct and strategic government intervention to tackle emissions has been identified by the UK Climate Committee in

its recent report on how to meet the UK's carbon budget. Focusing on the decarbonisation of the UK power sector, the Committee has recommended increased regulation and taxation to stimulate transformation in the sector. Its recommendations include measures to strengthen the carbon price, for example extending exemptions to the UK's Climate Change Levy to all low-carbon power generation or a carbon tax to underpin the carbon price; measures to provide certainty over the price paid for low-carbon generation, for example feed-in tariffs for low-carbon power generation; and finally measures to ensure investment in low-carbon generation, for example an emissions performance standard and a low-carbon obligation.¹⁹⁰

As regards existing carbon trading schemes, while attempts at reform are likely to be met with significant resistance from those groups who have an interest in perpetuating the schemes, it is clear from this analysis that existing schemes, notably the EU ETS, are highly problematic and cannot be left to continue as they are. Fundamental reforms are needed, at the very least to ensure that these schemes do not constitute a barrier to tackling climate change, for example by driving the expansion of offsetting and providing windfall profits which give unfair competitive advantage to highly polluting industries.

Finally, as well as implementing far-reaching and proven policy tools to ensure emissions cuts and to shift economies in the developed and developing world towards more sustainable low-carbon pathways, developed countries must fulfil their obligations to provide adequate finance to developing countries to support low-carbon development.

Systemic problems of global inequality, uneven development and unsustainable consumption by rich developed countries must be addressed if developing countries are themselves to tackle climate change whilst also achieving sustainable, low-carbon development and poverty reduction.

The policy mix – key demands

1. Emissions trading

- Halt expansion of emissions trading schemes globally.
- No linking of emissions trading schemes.
- Fundamental reforms to existing schemes such as the EU ETS to close loopholes, including the removal of all forms of offsets, and ensure they are not subject to abuse and profiteering by industry and finance.
- Focus government policy-making and spending on the rapid deployment of the proposals set out below.

2. Developed-country emissions cuts – rapid deployment of simple, direct and proven policy tools

Developed-country governments must agree to emissions cuts of at least 40 per cent on 1990 levels by 2020, excluding offsetting, and adopt a huge transformational agenda to ensure that these cuts are delivered. This programme should comprise taxation, regulation and publicly-funded investment as proposed by advocates of a global Green New Deal¹⁹¹ in order to deliver rapid structural transformation of developed country economies to lower carbon pathways.

A. Taxation: Increased use of hypothecated and escalating carbon taxes to drive behavioural change and provide government revenue for low-carbon investment.

B. Standard setting and direct regulation: A return to the use of proven, direct regulatory approaches to drive emissions reductions by heavily polluting industry, incorporating key lessons from the successes of the EU's Integrated Pollution Prevention and Control directive.

C. Public finance: A major increase in public investment to address the climate crisis, prioritised in the research, development and deployment of renewable energy, improvements to energy efficiency in buildings, public housing and effective measures to tackle fuel poverty, and public infrastructure, including sustainable transport. New carbon taxes and other innovative instruments such as a Tobin tax could provide new sources of funding for these investments, but it will also necessitate a reprioritisation of government spending and an end to perverse subsidies such as those to fossil fuels.

All policies should be underpinned by greater transparency and scrutiny in formulation and decision making. All policies should also ensure a just transition for workers in affected industries and include actions to mitigate against any regressive impacts on low-income and other vulnerable groups.

3. Addressing global inequality and supporting low-carbon development in developing countries

Urgent action should be undertaken by developed countries to support climate mitigation and adaptation in developing countries and to address historic patterns of uneven and inappropriate development which prevent developing countries from tackling climate change and making progress on poverty reduction and sustainable development.

A. New and additional climate finance: Developed countries must deliver on their commitment through the UNFCCC to pay the full incremental costs of climate mitigation and adaptation in developing countries. This requires the urgent commitment and delivery of significant public funds of at least €200 billion per year¹⁹² by 2012 from developed countries overall. This finance must be delivered under the authority of the UNFCCC and ensure respect for human rights and a focus on social and environmental outcomes.

B. Technology transfer and intellectual property rights: Supporting developing countries in making emissions cuts necessitates large-scale technology transfer of environmental goods and services. Current intellectual property rights stand in the way of this and must be tackled.

C. Stopping unfair trade and investment policies: International trade and investment agreements are a driving force behind the growth of energy-intensive industries and also undermine development prospects in developing countries. A major refocusing of global trade and investment rules is needed.

D. Unconditional cancellation of illegitimate foreign debt: Developing countries cannot be expected to pay for emissions reductions while paying US\$100 million per day in debt to the developed world. There must be 100 per cent cancellation of all unpayable and unjust debts, and US\$400 billion in immediate debt relief.

E. A new development paradigm: Developed countries must stop promoting export-led development that contributes to climate change and instead prioritise support for sustainable livelihoods and poverty reduction, including protecting small-scale farmers and the rights of Indigenous Peoples and forest-dwelling communities.

F. Addressing unsustainable consumption: Rich countries use far more than their fair share of the world's resources. This excessive consumption is unsustainable and unjust and rich countries must set targets to reduce their resource use and put in place plans to achieve them.

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A DANGEROUS OBSESSION

This report evaluates whether carbon trading can deliver the necessary emissions reductions to avoid dangerous climate change quickly, strategically, and in a just and equitable way. It also looks at what alternative tools are available to governments.

Friends of the Earth is calling on people to demand a strong and fair global agreement to tackle climate change. Governments should:

1. Agree that developed countries must reduce their own emissions by at least 40 per cent by 2020, and reject all forms of offsetting, including proposals for new and expanded offsetting schemes.
2. Negotiate a new financial mechanism under the authority of the UN Framework Convention on Climate Change (UNFCCC) to ensure adequate financial flows of at least €200 billion by 2012 to developing countries to support their transition to low carbon development and fulfil their adaptation needs.
3. Reject plans to introduce Reducing Emissions from Deforestation and Forest Degradation (REDD) offsets, and instead negotiate effective and fair mechanisms to protect the Earth's forests that do not involve offsetting.

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Friends of the Earth England, Wales and Northern Ireland
26-28 Underwood Street
London N1 7JQ
www.foe.co.uk
Tel: 020 7490 1555
Fax: 020 7490 0881

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