Who owes who - Climate change, debt, equity and survival

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Executive summary

'1998 the warmest on record and also the worst year on record for natural disasters,' Financial Times, 25 June 1999

What is debt? Rich countries pursue highly indebted poor countries to service their foreign financial debts, at great cost to the millions who subsequently go without vital health and education services. But industrialised countries are themselves responsible for a much larger debt to the global community. Their reckless use of fossil fuels has helped create the spectre of climate change a storm cloud which hangs over every-one's future. And it is poor people in poor countries who suffer first and worst from both extreme weather conditions connected to climate change, and from the struggle to service unpayable foreign debts. Our understanding of debt, and who owes it, is horribly wrong and needs changing.

Geological history shows the earth gripped by natural cycles of coo ling and warming. Whatever the distant future holds for our climate is hard to predict. But today, and looking forward through the next century, the lives and livelihoods of more than one billion people are threatened by the effects of global warming, increased by human activity.(1)

Many of those most at risk live in poor countries. By 2025 the UN estimate that over half of all people living in developing countries, many where Christian Aid works, will be 'highly vulnerable' to floods and storms. (2) Already development work has been affected in many countries from Bangladesh to Tanzania and Honduras.

To solve the problem or, at least, mitigate its worst effects, we will all have to live within our environmental budget. The atmosphere can only absorb a certain amount of greenhouse gases before disruption begins. So, their emission needs controlling. As, each day, industrialised countries delay action on the 60-80 per cent cuts that are needed, they go over-budget and are running up an environmental or 'carbon' debt. Ironically those same countries today stand in judgement over much poorer countries that have comparatively insignificant conventional, financial debts.

The real carbon debt is the accumulation of surplus carbon dioxide beyond the capacity of the environment to absorb. But, our illustrative estimates also show the G7 running up carbon debts in economic efficiency terms of around $13 trillion each year. On the same calculation the group of highly indebted poor countries (HIPCs) are running up credits of between $141-$612 billion because of their under-use of fossil fuel resources and the climate.(3) At the higher end of the scale this gives a credit three times the conventional debt of the HIPCs, which stands around $200 billion. Not only does this question the continuing legitimacy of poor countries struggling to service debts which they cannot afford, it also points to the responsibility of the industrialised nations to reverse declining flows of resources and contribute far more toward sustainable development in developing countries.

With or without climate change and the carbon debts owed by rich countries, Christian Aid believes unpayable poor country debts should be cancelled, to achieve the global poverty reduction which the whole international community is committed to. Most of that community, through a series of international agreements, is also committed to controlling global warming and cancelling poor country debt. But, the carbon debt makes two clear points:

- rich countries' huge and growing debt to the global community for climate change, removes the last shred of moral legitimacy to keep holding poor countries hostage to their own much smaller, but still unpayable, financial debts
- responsibility for climate change, and ability to pay, means industrialised countries should commit significant new resources and technology to help poor countries affected by the increasingly volatile and uncertain global environment

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Introduction

The declining health of frog populations globally is an unlikely indicator of how chemical pollution has eroded the ozone layer that protects the earth from ultraviolet radiation.(4) When the weather phenomenon El Niño hit Indonesia it caused the worst drought for fifty years and created a super-disaster domino effect. The rice crops failed, the price of imported rice quadrupled... food riots erupted in the capital, Jakarta, and in the countryside, massive forest fires burned out of control, paralysing parts of the country with a toxic layer of smoke,' said the 1999 World Disasters Report. Economic damage from the climate-related problems can only have worsened the financial crisis the country was undergoing. Different problems are often unexpectedly related.

We are surrounded by both virtuous and vicious cycles. Two of the great environment and development challenges of today could be related, both as problems and by possible solutions. Global warming and unpayable poor country debt have a huge impact on Christian Aid's partners internationally and are the site of great international struggles to find effective solutions. Characteristic of both the Kyoto Protocol on climate change and the highly indebted poor country initiative (HIPC), is a meagre and bu-

reaucratic response to life threatening phenomena, whether economic or climatic.

The burden of debt leaves millions in the countries where Christian Aid works with inadequate health and education services. The poorest people are left struggling through their taxes to pay for debts which were somebody else's fault. The UN suggest that seven million children's' lives could be saved each year if unpayable debts were written off. Millions more, forced to live in environmentally vulnerable areas due to poverty, are falling victim to extreme weather conditions exacerbated by climate change. From Central America to Bangladesh and the various countries affected by the worsening El Niño phenomenon, many fall into both categories - in debt and struggling against an increasingly hostile environment.

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Because the climate system is owned by no one, and yet needed by everyone, it is only fair that we should all have an equal stake in the services it provides and in its protection. Yet the simplest of figures on the use of fossil fuels show that the truth is the opposite, and that rich countries today owe a vast environmental debt to poor countries.

It is another reason why the unpayable foreign debt of the least developed countries and the unbalanced leverage it buys for creditors should be ended. Progress on debt cancellation would also remove one of the obstacles to more full participation by poor countries in international environmental negotiations. An approach to cutting the kind of pollution which adds to global warming, based on the idea that no one person has a greater right to use the earth's resources than any other, seems to offer the only pragmatic way forward.

Climate change and the rich country debt to the global community

Global warming a history

"Predicting mass movements of people or political instability caused by water shortages or famine is now the task of a special CIA unit which alerts the White House to any crisis in the making. Its job is not to prevent these crises from occurring but to protect American interests."

At the height of colonialism the great powers bolstered a confidence in their own racial superiority with a belief in 'climate determinism'. If you lived in hot or tropical climates, they thought, you were naturally more prone to dissolute, degenerate and generally depraved behaviour. Pernicious racial overtones forced the deterministic idea from acceptable debate. (6) But, ironically, it was industrial development at the heart of colonial economic expansion that was genuinely determining the long term

future of the climate. The climate was set on a path of apparently inexorable warming, perhaps beyond the powers of today's politicians to reverse.

Ice records show us that for nearly half a million years the concentration of carbon dioxide in the atmosphere varied but stayed within a given range. Following over two hundred years of industrialisation and the burning of coal, oil and gas, concentrations of carbon dioxide in the atmosphere have risen by one third - faster and higher than anything in the historical record.(7) The reason is as simple as the result is complicated and, in its effects, unpredictable. Our fossil-fuel economy creates waste emissions faster than natural systems can absorb them. In the last hundred years the world has warmed by 0.6 degrees and sea level has risen by between 10 - 25 cm.(8) These seem small amounts, but only slight changes are needed for low lying states to be submerged and changes in weather to cause droughts and floods.

Atmospheric carbon dioxide levels have now reached a 160,000 year high. 1998 turned into the hottest year on record.(9)

Other factors cause variations in temperature: solar radiation, ocean circulation and changing cloud cover. But the scale of human interference means we are now going beyond the range of conditions caused by natural variability. In this uncharted territory, the danger exists that global warming could spiral out of control due to 'positive feedback'. Once the Earth heats to a certain point changes begin to happen which could feed off each other. Permafrost melts releasing methane, a powerful global warming gas; the ice sheets melt meaning less heat from the sun is reflected away; and trees and other plants die and burn releasing still more carbon dioxide into the atmosphere.

A climate model created by computer simulation at the British Hadley Centre for Climate Change suggests that just such a 'runaway' effect, leading to widespread desertification, could occur in the middle of the next century, in other words within the lifetime of much of the world's current population.(10)

Already new studies are pointing toward higher rates of warming and sea level rise than previously expected. Supporting the Intergovernmental Panel on Climate Change (IPCC) group of international scientists who state that 'the balance of evidence suggests a discernible human influence on global climate,' the new findings point to future temperature rises between 2 and 7 times more rapid than during the 20th century, and sea level rise between 1 and 7 times more rapid.(11)

The science of global warming - balancing the carbon budget

"Few people are willing to suspend action until all scientific doubt is settled. The world could end before that happens."

Financial Times (12)

Complex negotiations on climate change at the United Nations are advised by the IPCC. The UN Framework Convention on Climate Change (UNFCCC) calls for limiting greenhouse gases to "a level that would prevent dangerous anthropogenic interference with the climate system". In other words this means working to avoid worsening floods, hurricanes, droughts, animal and plant extinctions and the melting of ice caps.

There are many different scenarios of how quickly carbon dioxide, the chief greenhouse gas, will accumulate in the atmosphere. They differ according to the number of enormous variables in the system: political will to tackle the crisis; the unpredictable behaviour of ecosystems, population growth, and our ability to shift profligate consumption patterns.

In the pre-industrial era the level of carbon dioxide in the atmosphere stood at 280 parts per million by volume (ppmv). Current concentrations are approximately 366 ppmv, (13) and still rising. Different scenarios show the range of likely impacts on the climate of reducing carbon emissions to arrest concentrations at 350, 450 and 550

ppmv, although the current momentum of the global economy is likely to push levels past the higher limit. The lower range produces the greatest stability, the highest the least.

The mid-range figure, 450ppmv, follows the suggested target of the scientists of the IPCC to stabilise the concentration of carbon dioxide at below double the pre-industrial level. Even this ambitious target, which goes far beyond the targets discussed in the current political talks, is expected to lead to significant global warming, directly affecting many of world's poorest people.

The IPCC estimated in its first report in 1990 that to achieve this target a cut of at least 60 per cent in emissions was needed. (14) For every day that the world fails to live within its carbon budget the target for necessary reduction to achieve climate stability moves ever higher. Our calculations of the carbon debt owed by the industrial countries use this slightly conservative, mid range figure.

Based on the 1990 target for climate stabilisation, everyone in the world would have a per capita allowance of carbon of around 0.4 tonnes, per year. Again, as time passes our failure to live within our emissions budget means that allowance shrinks.

Allowing for variables like population growth, some estimate that to meet the target over the next century, we will all have an allocation of no more than 0.2 tonnes.(15) This is seen as an Bend game' target, to be moved towards by the end of the next century.

Even so, today, all industrialised countries exceed the former target many times over. Although by much lower amounts, several developing countries also already exceed the targets. Trapped in this reality are the deadlocked international climate changes talks, which now propose only weak measure to tackle the problem. Poor countries see no reason to cut emissions until they have at least gone through the same process of industrial development as the OECD group of rich nations. On the other hand, industrial lobbies in the US and elsewhere use developing country inaction as an excuse not to take more radical domestic initiatives.

But something else emerges from these calculations. While some countries, such as the very poorest, are more efficient in their energy use than others, overall an almost exact correlation exists between global GDP growth and carbon emissions. Although this absolute link may not continue into the future, the historical record remains untouched. (16) And the nature of the climate means that carbon dioxide accumulates in the upper atmosphere.

Rich countries, with much smaller populations and much higher energy use per person, are running up a huge carbon debt to the poorer and less industrialised countries. Although all calculations concerned with climate change are beset with uncertainty it is still possible to estimate the scale of the carbon debt owed by rich to poor countries. The unequal use of the global atmospheric commons even indicates how the poor are, in fact, subsidising the rich.

Two targets dominate the path for progress on climate change. Reducing the amount of greenhouse gas emissions into the atmosphere - known as contraction - to stabilise the climate. And, simultaneously, moving towards more equal rights for all to share in the sustainable use of fossil fuels - known as convergence. In the context of an international negotiation, where any party can hold any other to climate ransom through inaction, the second challenge is increasingly being accepted as the only politically acceptable way forward (see appendix).

Equity - the path to security

"... recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the

world,"

Universal Declaration of Human Rights

"We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable rights,"

United States Declaration of Independence, July 4, 1776

"...compelling political, institutional and moral arguments exist to warrant the goal of equity where individuals have equal rights to the carbon capacity of the atmosphere,"

Prof. D Kammen, University of California, and Prof. A Kinzig, Arizona State University

The drive to accumulate wealth, at the heart of our economic system, is shown increasingly to generate and exacerbate inequality. Just 225 of the world's ultra rich have a combined wealth equal to nearly half of the world's population. Less than 4 per cent of the combined wealth of the richest individuals would pay for universal access to basic social services.(23) Since 1960, the income gap between the fifth of the world's population living in industrialised countries and the poorest 20 per cent grew from their having 30 times as much income to 82 times. While some indicators of human development have improved, rates of child mortality in the least developed countries, compared to industrialised countries, are worse today than in 1960.(24) It is an irony of this age that information technology has brought us together, just as economic forces are driving us apart.

In the midst of this inequality one issue is often politically fudged. While our wants may differ greatly, our basic needs, denied to so many, are universal. The need for food, education, shelter, a health service, work, basic financial security, and the opportunity to relax and socialise with friends and family are commonly held. From the UN declaration of human rights to the series of international conferences this decade, objectives seeking to secure for all people such basic rights have been endorsed by governments the world over. (25) But, unlike economic agreements on liberalisation such as the GATT and the operations of the World Trade Organisation, they lack the force of international law and any mechanism for implementation.

Global warming is happening. To tackle it, the pollution from energy use, directly associated with economic growth, must be cut. In a world riven with inequality, how will countries at very different stages of development come to an agreement? As statistics show, the earth's resource pie is very unevenly divided.

According to our projection of sustainable carbon use per person, the United States currently uses twelve times the allowable amount. The United Kingdom uses nearly six times its share.

Under the same system a country like Bangladesh, poor, low lying and among the most vulnerable to sea level rise and other vagaries of climate change, could increase emissions over ten times. Tanzania could increase its carbon use by over 22 times, for the Sudan, a 15 fold rise would be allowed.(26)

The history of the climate talks is one of division between developing countries wanting entitlements to be proportional to population, whilst the industrialised countries want entitlements proportional to the size of their economies' GDP. The path to get from one to the other, from 'grand fathering' - unequal rights drawn down by historical precedent - to equal per capita shares, is contraction and convergence. Entitlements in this analysis are based on people rather than on economic wealth.

The carbon debt

It is agreed that global warming is happening and will have enormous human and economic costs. It is agreed that human intervention and the burning of fossil fuels is contributing to the process. It is agreed that emissions from fossil fuels should be reduced. But it is not universally agreed how.

The most widespread proposal is that countries should be given the license to pollute

a certain amount - in other words, a rationing of energy use. Then, if they pollute less than their ration they can trade their 'ration cards' - a reward for good behaviour. It follows from this that countries can also buy pollution permits from others.

But, how to set the amount a country is allowed to pollute - its entitlement or allocation? If rationing is based on current levels of energy use, it would recognise the right of rich countries to have more of the world's resources than poor countries - currently the suggestion of the US.

Many believe that there has to be rationing to help reduce global warming, but that it should be based on equal shares. This idea of 'contraction and convergence' is the position of the non-aligned group of developing countries. It is backed by all of Africa, India and China. (27) Climate expert at the Royal Institute of International Affairs, Michael Grubb, says 'No one has come up with a more logical way of solving the problem fairly'. It is based on the simple logic that you cannot argue for one person's right - entrenched in an international agreement - to claim a larger share of the world's natural resources than any other.

From this follows the idea of a carbon debt. Those countries that are using more than their fair share of the climate, and adding more to the damaging effects of global warming, are running up a debt to those countries that are using less than their fair allocation.

The Kyoto process

"Oil, coal, automobile, and electric utility trade associations are among the world's most heavily funded and influential lobbies. Through groups like the Global Climate Coalition, multinationals can - in near anonymity - finance misleading advertising campaigns, defend outdated subsidies, and fight international treaties."

Worldwatch Institute, State of the World 1999

The Framework Convention on Climate Change (UNFCCC) was signed at the 1992 Earth Summit in Rio de Janeiro, Brazil. In 1997 at the third follow up meeting, targets for reducing damaging greenhouse gas emissions were finally agreed in what was called the Kyoto Protocol. Though it sounds like the subject of a cold war thriller, it was actually the first concrete step in the battle against global warming.

Industrial countries agreed to reduce overall emissions by five per cent of the levels they were at in 1990. The target time period to achieve the reduction was between 2008 and 2012. The result was viewed by the UN Development Programme like this:

"...it is only a small step towards the 60-80 per cent reductions necessary to meet the objective of the convention, yet it is still a significantly lower level than the projected increase of 20-30 per cent by 2010 under a business as usual scenario"

One report warned that industrial countries were set to miss even the modest Kyoto target by 15 per cent in 2010. (17) The United States wanted targets to be treated "flexibly" and to be able to delay them for unspecified periods by "borrowing" from future pollution entitlements. In this case carbon debts would result, with little chance of future governments being called to account. (18) Eventually the US settled for avoiding real cuts by agreeing a system where it can buy permits to pollute from countries like Russia whose economic collapse dramatically reduced their energy consumption.

Following the Kyoto targets for greenhouse gas reductions, it is estimated that by the year 2050 the situation for the world's poor will be far more precarious. Over one billion will be at additional risk of water shortage. Twenty-two million more will be subject to coastal flooding, and further twenty million at risk of hunger. (19) But estimates vary. China alone believes 30 million could be internally displaced; the same figure appears for India. In a report for the summit which agreed the Kyoto Protocol, Britain's Department for Environment, Transport and the Regions, together with the

Met Office highlighted the hundreds of millions who will be subject to sea level rise and water shortage, and the 50 million people, especially in Africa, who will be at increased risk of hunger towards the end of the next century. (20) What is certain is that huge numbers will be affected.

Since the Earth Summit in Rio in 1992, industrialised countries have promised both financial assistance and environmentally friendly technology to help combat environmental degradation and global warming. The promises came to little. In 1997, aid giving by OECD countries fell to 'its lowest level ever' as a share of combined donor GNP, 0.22 per cent. The OECD's development assistance committee comment: 'Cuts in the aid budgets of the G7 countries account for most of the reduction'.(21) And, far from technology being altruistically transferred, the cost to developing countries of licensing technology rose from $6.8 billion in 1976 to over $60 billion in 1995.(22)

Economic Justice in the Greenhouse - Bernard Shaw and the Biosphere

For the last hundred years, the battle for economic justice has been fought as part of the titanic conflict between different economic systems east and west. The struggle was about who should control the economy: the state or the market, bureaucrat, capitalist or worker. Arguments raged over efficiency, fairness and practicality. Now, although the market system has triumphed, it has yet to provide answers to the needs of the world's poor and excluded, or to the world's worsening environmental predicament.

A new and potentially more profound struggle is stirring: who should have the right to benefit from the air, water, soil and materials that provide the foundations for life? If struggles in the past were over the ownership of the factories and the fields, the focus could now shift to battles over the biosphere.

Climate change exemplifies the new threats. The climate system is owned by no-one and needed by everyone. It is being degraded by the pollution of a minority for which the majority, now and in the future will suffer. Many of the superficial disputes about the science of the greenhouse effect have been shot through with deeper issues of responsibility, distribution and justice. In 1928, George Bernard Shaw outlined seven different types of distribution, good and bad, all of which have striking echoes for the current dispute over how the Earth's climate system should be managed to ensure both sustainability and justice:

1. To each what he or she produces.
2. To each what he or she deserves.
3. To each what he or she can get and hold.
4. To the common people enough to keep them alive and the rest to the gentry.
5. Equal division within classes, unequal between classes.
6. Let us go on as we are.
7. An equal share to everyone.

Four of these stand out in the discussions on climate change. In the USA, a powerful lobby is trying to ensure that it keeps "what it can get and hold', maintaining current inequality in energy use. Many gas, coal and oil producing companies and countries essentially want to "go on as we are', taking a disproportionate share. Moderates in the industrialised countries recognise the need to tackle global warming, but are only willing to do enough to ensure the mere survival of poor countries, nothing more.

But there is now growing political support for the last option, an equal share of the climate's capacity to everyone. Realpolitik and risk management have led people to realise that a lasting global agreement will be impossible unless it is founded on equality.

Fair levels are set by looking at how much emissions need to be reduced by. The target set by the Intergovernmental Panel on Climate Change (IPCC) is for a minimum 60 per cent reduction in production of global warming gases.

One calculation shows an enormous debt owed by the industrialised G7 countries, to the less, and especially the group of heavily indebted poor countries. An amount increasing day by day. If we were to project backward to the year 1860, the date from which officially recognised figures are available, the debt owed by rich countries would be astronomical.

Recently 26 African environment ministers, in Buenos Aires for the talks to implement the Kyoto agreement, warned that the wrong kind of mechanism to tackle global warming could increase South-North dependence. They linked the different issues stating that the chief obstacle to achieving sustainable development was "the large external debt and depleted resource base of Africa". (28) They asked how they can be expected to comply with environmental measures which may have a deflationary effect while they are also struggling with debt burdens.

"There must be limits on all greenhouse gases if the danger to our climate is to be averted... A globally agreed ceiling of greenhouse gas emissions can only be achieved by adopting the principle of per capita emissions rights...," according to the Africa group of nations at the climate negotiations, 1997.(29)

What price carbon?

To see the carbon debt owed by industrial to less industrialised countries in financial terms, a price has to be given for carbon. This creates practical and theoretical problems as there is no current market for carbon. During 1998 the market price of oil varied unpredictably from around $18 to $10 per barrel.(30) Approximately seven barrels of oil make up one tonne of carbon which would give a price for ranging from $70 to $126 per metric tonne. But this is just a face value put on fuel by the laws of supply and demand, in markets beset by inadequate information and no way of accounting for the social and environmental damage resulting from pollution - the so called "externalities'. Nor does this volatile daily market place tackle the question of how to value the cost to future generations of our exhausting a finite resource and the physical damage from climate change.

It is possible, though difficult, to account for economic damage as increasingly severe storms rip through places like Central America, and the insurance companies pay out to those who can afford insurance. But what price would we put on the extra lives lost to extreme weather conditions brought by global warming? The market price of fossil fuels cannot respond to the damage that today's use will cause when, in twenty or thirty years' time carbon dioxide accumulates in the atmosphere. Such market prices are driven by fashion, financial crashes, politics and herd behaviour. They are not God given.

All of us will be affected by climate change. But how do we account for the fact that very often poor, economically weaker countries stand to be most affected by sea level rise and that their people, due to their poverty, are more vulnerable to harsh weather? In 1995, documents prepared by economists in the UN caused outrage by attempting to estimate the impact of global warming by placing a cost on the number of lives lost. To do their sums, they valued the life of someone in a developing country at £62,500, against a life in Europe or the US being worth £940,000. When different sums were done valuing all lives equally, economic costs from climate change rose from 1.5-2 per cent of combined world GDP to up to one quarter of the total world product.

If the model of global warming, which suggests the possibility of runaway climate change beyond a critical threshold, becomes true, damages are potentially infinite. In this case the value, or price, of a tonne of carbon also becomes limitless.

Attempts to give values to the environment have always been constrained by problems of applying cost benefit analysis. Put simply, how do you price a life, a rainforest, or a wild flower meadow? Should it be set by how much you are willing or able to pay to preserve them, or by what compensation you would demand for their loss? In the second instance, again, the price could be infinite. Pricing carbon is an attempt to cost all of its production, use, benefits, and impacts. Defining a price is therefore hugely constrained by imperfect information, human values, method and approach.

For these reasons, and for the sake of having a workable illustration of the unequal use of fossil fuels, we use the historically close correlation between the basic measure of economic activity, Gross Domestic Product (GDP) and carbon dioxide emissions.

Without using complicated models to project variables like future population growth, this assessment takes as a base-line the original IPCC estimate of cuts in carbon dioxide emissions needed to stabilise CO2 concentrations in the atmosphere. In 1990, the year of the first report by the IPCC, for every tonne of carbon used around $3000 of global GDP was generated. (31) This is an average efficiency. A similar calculation can be done taking into account different levels of national efficiency (see graphs 6.i and 6.ii).

World population stood that year at 5.2 billion giving 1.15 metric tonnes of carbon per person if equally shared. The scientists of the IPCC called for a reduction of at least 60 per cent in fossil fuel use to stabilise the atmosphere, giving everyone an allocation of 0.4 tonnes per person. Using these figures as a base year, it is possible to see that per capita consumption above this figure accrues a debt to the global community. And, for the sake of illustration, we can give that debt an economic efficiency, as well as a tonnage, value.

Efficiencies will vary - in fact showing that the very poorest countries are also the most efficient users of energy in terms of GDP. It also shows that if people were rewarded for their carbon efficiency the world would look very different.

Energy efficiency and a low carbon-use world economy

"Long before we completely run out of fossil fuels... the environmental and health burdens of using them may force us toward a cleaner energy system,"

Worldwatch Institute, State of the World 1999.

Contrary to popular perceptions, some of the poorest countries on earth are also the most economic users of energy. Comparing the amount of dollars of economic output generated for every kilogram of fossil fuels used commercially, demonstrates clearly that the least developed countries are nearly twice as efficient as all the industrialised countries combined.(32) Their efficiency can be in spite of attempts to wean poor countries onto the same profligate path of energy use exemplified by the US.

Shifting toward a low-fossil fuel energy strategy opens up a range of opportunities for more environmentally friendly and renewable energy sources. According to the World Energy Council such sources "offer a very long-term promise for a permanent solution' to energy problems. (33) Even the oil company Shell admit that renewables could take over 50 per cent of the energy market by 2050. The appeal of diversifying into renewables rests on low costs, availability of sources, security and relative environmental friendliness. Because most renewables function well away from national energy grids, they are also flexible, good at supplying remote rural areas and lend towards greater communal self-sufficiency. They can be literally "empowering'. The development of technology for solar energy, photovoltaics (PV) may have enormous potential but there are many sources available. In 1991 Nicaragua was gaining 28 per cent of its power from geothermal energy, Kenya 9 per cent. Both the Philippines and Mexico are major producers and it is thought that countries like Djibouti and St Lucia could meet all their energy sources in this way. Biomass fuels have been used effectively in Zimbabwe allowing some farming diversification and easing dependence

on expensive oil imports. Ethanol, produced from sugar cane, fuels half of the cars in Brazil.

Wind power, both land-based and offshore, is flexible, reliable, competitive in price and getting cheaper. It is being treated as a serious energy option in countries from India and China to Mexico. Not only does this provide non-fossil fuel energy solutions, it also creates opportunities for manufacturing and employment.

Every year the uptake of solar power increases. Across South Africa, Colombia, India, Sri Lanka, Mexico and the Dominican Republic households are turning to solar power to help meet their energy needs. Prices for solar technology are falling and major multinational energy companies are slowly increasing their investment in the face of continuing dependence on fossil fuels. In rural areas poorly served by grids, solar power can provide independence as well as energy.

Measures to increase energy efficiency are seen by many as a fuel source in their own right. Improved energy efficiency could cut by up to half the need for new generating capacity in countries like Brazil, India and China.(34)

Promoting these sorts of measures is a major challenge for the international aid community. But major creditors like the World Bank continue to fund environmentally obsolete fossil fuel based industrialisation.

In the last decade the World Bank spent under $1.6 billion on projects promoting climate friendly energy options. However, during the 1990's the Bank spent $12 billion, over seven times as much, promoting non-climate friendly energy projects. The earlier savings on emissions by the friendly technologies were more than cancelled out. (35)

In addition, the Bank's lending on non-fossil fuel energy projects has been criticised for its prominent focus on "giant dams and thermal power plants,' rather than small scale renewables accessible to poor people.(36) Without realistic financial assistance, debt relief and long-promised clean technology transfer many poor countries will continue to depend on readily available "dirty' fuel sources like coal.

The 'rights' market: the struggle to control the global carbon trading floor

"Senior (US) bureaucrats conceded that if the Chinese could be persuaded to play "Contraction and Convergence" the US would have to play. It was the only game in town,"

Globe International, 1999.

Once a market place has been created for polluters who are prepared to trade in emission permits, legally binding targets are needed to set their value. Then trading can begin. Today such targets are established under the Kyoto Protocol. These, however, fall far short of the 60 - 80 per cent cuts recommended by the scientists of the IPCC.

A battle to define the terms of the debate is already raging. The petrochemical multinationals BP and Shell are both experimenting with ways to set up a market trading in carbon dioxide permits. In London the International Petroleum Exchange positioned itself as a centre for trading permits. The World Bank and the UN's specialist trade body UNCTAD are also jockeying to be well placed for the huge new market as it emerges.

Many issues remain unresolved. Who should trade, governments or companies? Should permits be paid for initially or issued free? Behind this debate is an influential corporate lobby in the United States called the Global Climate Coalition, who disagree in principle that there should be any regulatory control on the right of business to use as much energy as it wants.

On the fundamental concern about how the rights to trade will be allocated - who gets the right to emit how much - the official negotiators at the many climate conferences

have been largely silent.

The US Senate says it wants "a global solution for a global problem". But the price for many developing countries to take part will be the allocation of carbon property rights on a fair and equal basis. Also, many want an acknowledgement of the huge carbon debt owed by the industrialised countries. Some criticise carbon trading as a means to allow already developed countries to carry on business as usual. But a truly global agreement based on an agreed maximum level of emissions, with shares of the total fairly divided, would avoid such a problem.

Debt, climate disasters and Christian Aid's partners

The poor country debt and the Heavily Indebted Poor Country Initiative

Many of the world's poorest countries spend more servicing their foreign debts than on either health or education, and often both. Every second a child is born into unpayable debt in these countries. According to the United Nations Development Programme seven million children die unnecessarily as funds that should be spent on essential services bleed away in debt service payments.

After long delay, in 1996 an international initiative was agreed to address this debt crisis. In return for handing over significant control of their economies to the World Bank and International Monetary Fund in Washington DC, heavily indebted poor countries would get limited relief after a period of economic adjustment lasting up to six years.

It was the first time that the Bank and Fund had agreed to be involved in such a scheme and importantly brought together all the major creditors. But the scheme was seriously flawed, even at the outset, and remains so after changes agreed at the G8 summit in Cologne, Germany. Fundamentally, the debt scheme fails to take account of the resources countries need to invest in health and education in order to meet basic needs. Such considerations are absent when calculating the degree of debt relief. The creditors' actions are like a court ordering a person in debt to repay a loan at a rate which is set regardless of the debtor’s obligations to buy food and clothes for their family, and schoolbooks for their children - and in a context where there is no social welfare safety net.

Officials set levels of debt service that they thought the countries should pay, based on out-of-date and irrelevant estimates, which were originally designed for wealthier countries faced by different problems.

Instead of freeing resources to invest in poverty reduction, the highly indebted poor country initiative (HIPC), is designed to establish what creditors call "debt sustainability'. It aims to manoeuvre the countries' economies to avoid debt rescheduling. But neither the debtor government nor their populations, who are saddled with paying the debt, have much say in the process. Unlike most other similar (what are in effect "bankruptcy') proceedings the creditors act as judge and jury. The scheme offers too little relief, over too long a time frame, and with too many conditions attached.

So far, just three countries Uganda, Bolivia and Mozambique have benefited financially. Countries only benefit from a marginal reduction in debt service, while the policy package they have to accept as a precondition for joining the scheme, which comes via the IMF's Enhanced Structural Adjustment Facility (ESAF), has a 75 per cent failure rate according to the IMF's own internal review.

Christian Aid believes that the degree of debt relief should be determined by the resources needed by a country to stand a chance of meeting the new international development targets. The targets include universal primary education by the year 2015, halving global poverty in the same period of time and implementing national sustainable development strategies in all countries by 2005.

Recent developments agreed among G8 nations suggest some new flexibility in the HIPC criteria, but stop short of redesigning the package so that debt relief would work for genuine poverty reduction.

When Tanzania finally qualifies under the new conditions it will still spend more than one third of a million dollars per day on debt service, more than it spends on health or education. Mozambique, Bolivia and Mali will all still spend more on debt service than primary education, the first two countries more than double. Christian Aid now believes that there should be a five year moratorium on debt service for the very poorest countries.

During the moratorium, creditors could work with governments and civil society groups and calculate how much relief will be needed to set countries on a path to reach the international development targets.

Climate change and its impact on Christian Aid's partners

"We witness examples almost every week of the disasters which climate change may make more frequent and damaging: drought and famine in Papua New Guinea; hurricanes and floods in Latin America... We cannot lecture developing countries about the importance of protecting the environment from behind the luxury of our own high living standards,"

Foreign Secretary, Robin Cook, 1997.(37)

Climate change scientists estimate that the more extreme weather patterns we are experiencing today are the result of greenhouse gases that were sent into the atmosphere three decades ago. It will be another 30 years before we feel the full effect of today's industrial activity. The fact that we cannot avoid further massive disruption means that, as well as cutting emissions, enormous assistance will be needed to help the poorest and most vulnerable countries to adapt.

Flooding of the Yangtze river in China during 1998 caused losses estimated at $36 billion.(38) There were few places to hide from the new extremes of weather as 45 countries were hit by severe drought.

One hundred died in the US in Texas during summer heat waves, 3000 were estimated to have died in India. Lethal heat waves returned in 1999. The cost of natural disasters in the first seven months of 1998, $72 billion, surpassed the previous record set for an entire year, $60 billion in 1996, according to the Worldwatch Institute. Reinsurance firm Munich Re confirmed 1998 as the worst year on record for natural disasters.

Small island states, coastal areas and river deltas are most at risk from anticipated sea level rise. Particularly at risk are the areas around the Mekong, Indus and Yangtze in Asia; the Zambezi, Niger and Senegal in Africa; and the Orinoco, Amazon and La Plata in South America.(39) Europe does not escape either where its major rivers are concerned.

Danger comes from the fact that although only a small percentage of land surfaces will be affected, these are precisely the areas where people live and grow food. Threatened areas include approximately one third of croplands.

The burden of dealing with such enormous disruption will fall on countries where many already lead subsistence lives. The most affected will be people with the least access to adequate health systems, alternative housing and other social safety nets. These are countries which already survive with little room for error when growing food. Small amounts of disrupted production due to changed weather patterns, drought and flooding, could wipe out marginal agricultural surpluses.

1. Bangladesh and the ever rising floods

No stranger to floods, in 1998, Bangladesh began to experience its worst floods in living memory. By September two thirds of the country was under water, including half

the capital. Already at that time Christian Aid partners reported that for some projects ten years of development efforts had been washed away. Twenty-one million people were left homeless, equal to one third of the UK population. There would be no harvest that year, the floods reached record levels.(41)

In some areas the waters reached 20 metres deep. They left two million cattle and buffalo sick and diseased, along with 700,000 sheep and goats, and ten million poultry.

But in normal circumstances the floods should be an important event central to a river delta, farming economy. Bangladesh is dominated by the convergence of three great rivers - the Ganges, the Brahmaputra and the Meghna. They continue to erode and flood the land but in doing so the rivers replenish fish stocks, renew ground water levels and bring fertility to the land. Only if monsoon conditions become abnormal do problems arise along with the floodwater.

Two things, both controversial, could be contributing to the worsening of conditions: global warming and the much troubled, and now superseded, foreign-aid sponsored Bangladesh flood relief action plan.

Bangladesh could be one of the countries worst affected by global warming. Current projections for sea level rise suggest that 25,000 square kilometres of the country, nearly one fifth of its entire area, could be drowned. This would leave most of the rest of the country open to continual flooding.(42)

Crop loss in 1998 was estimated at over four million tonnes of rice. Christian Aid's initial response to the emergency was to provide food, clothing and shelter. The next priority was to assist farmers with replacing lost crops. Seeds and seedlings were provided through local networks to replant fields when the waters subsided.

They would provide both food and a limited source of extra income by selling any surplus. Radish, spinach, pakchoi and pumpkin, among others, were all provided. Vegetables planted in the aftermath of the flood continued to produce food through to spring 1999. The length of the floods meant that the resources of poor families were used up, small scale agricultural inputs were vital for survival. Work also went on to rebuild homes, roads and embankments, but the agricultural work was most important.

"We have supplied 100,000 families with seven seed types,' said Christian Aid's Mohammed Aslam, "Within three months, many of the most vulnerable families, whose meagre assets were exhausted because of the long duration of the floods, were able to begin to harvest their first post-flood crops.' Nobody knows how great the next floods will be, how much damage they will cause or whether repair work from the last floods will be complete before they begin. The support for rehabilitation was repeated in 1999, with Christian Aid spending nearly £400,000 on the work.

Disasters hurt the poor most. "Whenever it floods there is tremendous erosion, which happens when rivers are young. In the United States they stopped trying to control the rivers, instead they move communities,' according to Mary Conville of Christian Aid's South Asia programme, "In Bangladesh they don't have the resources to do that, so poor people move themselves to other areas which are equally vulnerable.'

2. El Niño: wild nature and planning for the unpredictable

El Niño, a disturbance in the world's normal weather pattern, has been a regular climatic event happening every three to seven years. Until 1997-98 the last serious event was in 1982-83, when more than a thousand died and the weather caused an estimated £8 billion in damage. But recently things changed:

"For reasons that remain a matter of extreme meteorological controversy, these patterns seem to have altered of late. Some sort of El Ni-o was registered in every year between 1991 and 1995. In 1996 it suddenly disappeared completely. This year is

likely to witness the most serious example this century. Average global temperatures may reach their highest-ever recorded levels this year. They will probably be exceeded once again in 1998,"

The Times, leader 22 October 1997.

Temperatures in the Pacific Ocean reached their highest for 150 years and The Times prediction for 1998 proved correct. For a development agency like Christian Aid, a weather disturbance on the scale of El Ni-o is an awesome challenge. Its geographical range, unpredictability and sheer impact are hard to imagine. El Ni-o leaves its scars in droughts and floods from Southern Africa to Northern India, and Latin America to the Pacific.

Life for the communities supported by Christian Aid is hard enough without the extra burden of lost crops and ruined property.

In Somalia and Kenya torrential rains displaced hundreds of thousands of people - a quarter of a million Somalis alone(45) - at the same time sweeping away the crops they depended on. In Papua New Guinea hundreds of thousands more were threatened with famine. In Peru and Bolivia, while people high in the Andes faced drought, down on the coast whole villages were washed away by heavy floods. The exhausting list continues: forest fires hit Indonesia and flash floods deluge Mexico.

So drastic were the effects of El Niño on the ability of people to feed themselves, and the damage to essential export crops that the UN World Food Programme set up an emergency task force. They predicted that 27 million people could be at risk and over $200 million would be needed to help less than one fifth of the worst hit. Advance warning and improved infrastructure did, however, allow countries like Mozambique, Zambia and Malawi to build up grain reserves and advise farmers to plant more hardy crops.

In the face of such upheaval Christian Aid deployed its limited resources as best it could. In Mozambique, Tanzania and Malawi support went to partner organisations that were helping farmers to prepare for drought conditions. Prime witness to the climatic confusion, Tanzania also had to contend with torrential rain. Flood relief work and the rebuilding of communities was the priority in Kenya and Somalia. Essential food supplies were provided in Papua New Guinea, while terracing and water conservation to protect crops were the focus in Peru and Bolivia. (46)

3. Hurricane Mitch and Central America's great reversal

"We lost in 72 hours what we have taken more than 50 years to build,"

President Carlos Flores, Honduras.

No one will ever know how many people died because of Hurricane Mitch. Many of the worst hit communities were too remote. Many bodies were never found. One estimate was that 10,000 were killed in Nicaragua and Honduras, another 9,000 were missing. Nearly 3 million were displaced or severely affected and 126,000 homes were destroyed. Today, the map of Honduras has been redrawn, literally. Because of the hurricane hills have gone, towns disappeared and major rivers changed their course. The total cost of damage was estimated at $3.8 billion, or 70 per cent of the country's income.(48)

In the days at the end of October and the beginning of November 1998 winds of up to 155 miles per hour blasted through Central America. Nicaragua and Honduras suffered most. The winds blew away decades of slow, hard won social and economic development. More than one in five people were left homeless in Honduras. Harvests of the staple foods, rice, yucca and sweet potato were destroyed. Banana plantations, which provided the countries chief export income, were ninety-five per cent decimated.

A downward spiral of economic collapse, shattered social services, homelessness,

grief for the dead, and illness resulting from the lack of clean drinking water and poor sanitation threatened.

The response of the aid giving countries was slow. In comparison to the quick financial defence of the US based hedge fund, Long Term Capital Management, or the IMF bail-outs of investors in the Asian economies, the help Central America received looked reluctant. On top of the late aid effort, the countries were also heavily in debt and already struggling. The disaster exposed a long-term economic malaise and persistent failure to meet the needs of the poor and excluded, exacerbated by the external debt crisis.

In Nicaragua 39 per cent of government expenditure in 1997 went on debt service, more than twice that spent on health and education combined. Honduras' debt service represented 80 per cent of government revenue, while Nicaragua's was estimated to be around half of all revenue. At the time of the hurricane Honduras and Nicaragua together were paying debt service at the rate of $2.2 million per day.

"Many of those who died or disappeared lived at the margins of our society, on riverbeds around the edges of industrial areas or on steep hillsides in the countryside. They were the expendable ones about whom the government has never been concerned. As we begin to build our country, they must be taken seriously, they must be taken into consideration,' said Noemi Espinosa of the Christian Aid funded Honduran Christian Commission for Development,

"The project of reconstruction must focus on the people, not just the infrastructure. We have to learn from this disaster. We have to change the way power is distributed and exercised, so that the poor and forgotten can participate in rebuilding their lives, and not just be spectators as the international assistance is used to rebuild an economy for the wealthy. The poor possess a tremendous capability to solve their own problems. Our task is to accompany them. If they're not the ones to rebuild their communities, to participate in making decisions about their lives then we have no future as a country.'

Debts of the countries when the hurricane hit

Nicaragua

Debt stock $5,929 million

Debt service $221 million ($605,479 per day)

Debt per person $1,186

Honduras

Debt stock $4,453 million

Debt service $564 million ($1.55 million per day)

Debt per person $725

Source: World Bank, Global Development Finance

Taking techno-fix to task: the Bangladesh Flood Action Plan (FAP)

"FAP is... just another vast income-generating scheme for assorted experts, foreign consultants and commission-seeking bureaucrats,"

Nerun N Yakub (43)

Poor countries lose in many ways. Even apparent kindness can be killing. As global temperatures were rising after the second year of excessive flooding in 1988, it looked as though each year would now bring impossible disruption to the country's agriculture and economy.

A plan was dreamed up by the aid-giving countries to solve the problem - the Bangla-

desh Flood Action Plan. It would prove to be one of the largest and most controversial aid projects ever. And, according to some in Bangladesh, it would harm the people it was meant to help and worsen environmental damage.

A lack of local involvement in the scheme was coupled with a failure to learn from past mistakes, over confidence in the engineer's ability to tame the great rivers and bad design. The World Bank, itself a key coordinator commented on the "extraordinary absence' of evaluation from past experience and "continuing pressure for large scale capital intensive solutions to the flood problem' despite evidence of their not being cost effective.

As the scheme progressed it threatened displacement of people, maintenance costs that Bangladesh could not afford and a design not intended to cope with the new, more extreme flood conditions. Beneficial flooding would be disrupted while abnormal conditions would not be controlled. One farmer, who used his land to feed a family of seven, discovered that his entire plot had been designated as a site to build a sluice gate as part of the scheme. He knew nothing until after the surveyors were finished. His experience was not unusual. Compensation for the displaced should technically be paid, though in reality it often didn't materialise.

Roughly 60 per cent of the funds spent on FAP in the 1990-95 phase did not stay in Bangladesh but went back to the donor countries to pay expatriate consultants and contractors

Kenya - when a blessing becomes a curse(47)

In eastern Kenya they used to pray for rain. In 1998 they prayed for it to stop. Ali Dulo waded through the chocolate water that ran through the ruins of Rhoka, his home village. "This El Ni-o,' he said, "has left us shocked in our hearts. We have never seen rains like this. We have always thought of rain as a blessing. Now when we hear thunder it makes us feel very bad.'

For the Pokomo people, who cultivated the river banks, both their livestock and first plantings of crops were swept away when the Tana river flooded. Usually the valley would be baked brown by a fierce sun at that time of year. The Orma people who grazed the hinterland fared no better. As they fled to higher ground their cattle and goats were carried off by the flood water. Those animals that survived, unused to the wet conditions, went down with foot rot, pneumonia and other diseases.

No one in Kenya could remember such persistent rains, even those who recalled heavy floods in 1961. Roads were so damaged that the small amounts of fruit that survived the floods could not be sent to their usual markets in Mombasa and Nairobi. Animals too could not get to market. Scarce cash resources even more depleted, few could afford to send children back to school - where the schools escaped flooding - as fees are charged.

It is easy to see why the poor suffer most when disaster strikes. Support structures crumble, incomes are torn away and prices rise on the most basic essentials. In Hola food became virtually unobtainable or prohibitively expensive. Before supplies of maize ran out, the price nearly tripled, the price for bananas rose ten times.

Polluted water and broken sanitation systems meant that disease soon became a problem. "People drink the river water but it is badly polluted,' says medical officer of health Dr David Muthama, "Pit latrines are flooded and the waste has mixed with the water'. As always, the immediate disaster was one challenge. Once the water receded the challenge of reconstruction began.

"Ethiopia, which had suffered disastrously from drought in the 1980's, last year produced a food surplus for the first time in decades. But... the coffee crop (Ethiopia's main export) is badly damaged and the government is now appealing for food aid. In the whole eastern region, hundreds of thousands of people have lost their homes,

herds of livestock have been drowned, crops destroyed and roads and bridges swept away. People in places where rain is usually praised as a blessing are now overwhelmed by its excess."

The Economist, 13 December 1997.

Nicaragua - debt and disaster

Without the disaster of Hurricane Mitch the situation in Nicaragua was already bad, its economy crippled by debt. "For Nicaragua the debt means poverty, less education, less medical care, 65 per cent unemployment...' said Gustavo Parajon, of CEPAD, a Christian Aid partner in Nicaragua.

- Even before the hurricane nearly half of Nicaraguans did not have access to safe water, a figure inevitably worsened by the hurricane damage. Forty per cent also had no access to sanitation
- Over one third of the people in Nicaragua are illiterate
- According to UNICEF 84 per cent of children live in poverty. Children under 18 years old make up the majority of the population, 53 per cent.

An estimated 60 per cent of Nicaragua's infrastructure was destroyed - including roads, 512 schools, 102 health centres and 29 bridges. As the storm blew out Christian Aid called for:

- an immediate moratorium on debt payments from Nicaragua to the British Government, the Paris Club countries, the World Bank and the IMF
- an urgent assessment of the scale of aid and debt relief necessary to restore Nicaragua's infrastructure from the impact of Hurricane Mitch
- fast track treatment for Nicaragua under the current international debt relief initiative and the amount of relief offered to be based on what the country needs to meet the international agreed poverty reduction targets for the year 2015

Only the moratorium on debt payments was agreed by creditors, bolstered by aid. Christian Aid's response was to further assist existing partners whose normal work was disrupted or stopped altogether. In the north-east of Nicaragua helped the Juan Francisco Paz Silva Co-operative in Achuapa whose usual work was supplying sesame oil to The Body Shop retail chain. In the Hurricane's aftermath the co-operative found itself providing basic foods, medicine, clothing and shelter to 13,000 people to a community in Leon.

Partners in Honduras, such as the Christian Commission for Development, continue to carry out rehabilitation and long term development work to rebuild the country, work which will take at least twenty years.

Conclusion

"The World Bank and IMF talk about "structural adjustment' in monetary terms. My own feeling is what we really need is adjustment to sustainable life styles, the (World) Bank would not recommend. Because their structural adjustment is in money terms, not value terms. But if developing countries have to undergo such an adjustment in terms of financial problems..., industrialised countries will also have to go through a structural adjustment process,"

M.S. Swaminatham, Caring for the Future: report of the Independent Commission on Population and Quality of Life, 1996.

The North has a case to answer. Its exploitation of the climate means that it has a greater debt to poor countries and the global community than poor countries do in reverse. Yet, the lethal traffic of debt is still one way. Foreign debt kills in the least

developed countries as its cost undermines investment in health and education. Carbon debt kills as climate change hits poor countries first and worst. The Rio Declaration signed at the Earth Summit in Rio, 1992, called on governments to include environmental costs in their accounting saying that the "polluter should, in principle, bear the cost of pollution'. It is time for rich countries to face up to the obligations they bear because of their enormous carbon debts: first, the cancellation of poor countries' unpayable financial debts as simply illegitimate to still pursue; second, the transfer of technology and new resources to help poor countries deal with climate change.

Debts that kill need to be dealt with. The rich countries' carbon debt is now the clearest argument for conventional debt cancellation, but should also be linked to a better deal on trade, aid, greater technology transfer from rich to poor and, vitally, a commitment to tackling climate change built on the foundations of equity.

Christian Aid is calling for a minimum five year moratorium on debt service payments for the very poor countries such as Tanzania, Mozambique and Malawi. To ensure that the objective of poverty reduction is met, the link between IMF imposed policies and debt relief should be cut and a new model explored where conditions for debt relief are designed in association with local people, the government and creditors. Finally, levels of debt cancellation need to be calculated on the basis of the resources countries will need to meet the international development targets. To help the poorest countries reach the international development targets for the year 2015, Christian Aid calculates that Britain's share would be around $4 billion. A significant amount of money but trivial compared to the estimated trillions of carbon debt owed by the G7 to the global community.

The debts of the poorest countries often exist only on paper and yet give creditors the opportunity to demand policy packages which have been shown not to work. The industrialised countries' carbon debt and the uncertain climate it has created, however, are also imposed on the South. A certain logic suggests that poor countries should be able to impose a reverse form of structural adjustment. Instead of rich countries and the IMF imposing Enhanced Structural Adjustment Programmes, three quarters of which fail, on the South, the South might feel justified imposing a new type of Enhanced Sustainability Adjustment Programme on the North, in response to their profligate over-consumption of resources.

It is already too late to prevent some of the havoc brought by climate change. But this is no excuse for inaction. More urgent targets and timetables to reduce greenhouse gases are needed. Political agreement on these will be unlikely unless they are based on the principle of our equal rights to the climate (see appendix 1).

Our climate is owned by no one and yet needed by everyone, rich and poor. As we struggle to act together to save it, we stumble across one devastating idea. Our survival depends on equity.

Appendices

1. Support for the idea of contraction and convergence

The Indian Government

"Policy Instruments such as "Tradable Emissions Quotas", "Carbon Taxes" and "Joint Implementation" may well serve to make matters worse unless they are properly referenced to targets and time-tables for equitable emissions reductions overall. This means devising and implementing a programme for convergence at equitable and sustainable par values for consumption on a per capita basis globally."

Statement at the First Conference of the Parties to the UNFCCC

The Africa Group of Nations

"As we negotiate the reduction of GHG (greenhouse gas emissions), the countries of

Africa believe that there should be certain principles that need to be clearly defined.

- There must be limits on all GHGs if the danger to our climate is to be averted.

[...]

- A globally agreed ceiling of GHG emissions can only be achieved by adopting the principle of per capita emissions rights [...]"

Africa Group position at the negotiating session of the Ad Hoc Group of the Berlin Mandate, August 1997

China

"When we ask the opinions of people from all circles, many people, in particular the scientists, think that the missions control standard should be formulated on a per capita basis. According to the UN Charter, everybody is born equal, and has inalienable rights to enjoy modern technological civilisation. Today the per capita consumption is just one tenth of that of the developed countries, one eighth of that of medium developed countries."

Dr Song Jian, State Councillor with responsibility for Climate Change and Population, to the China Council for International Cooperation on Environment and Development.

Britain

"I agree that, in the fight against climate change, this (contraction and convergence) makes an important contribution to the debate on how we achieve long term climate stability, taking account of the principles of equity and sustainability."

Letter from Prime Minister Tony Blair, 5 October 1998.

"...It is our view that the time has come for a serious review under the Convention of the commitments of all countries, that reflects the economic and development needs of developing countries. 'Contraction and Convergence" should be clearly one of the ideas on the table in such a review."

Michael Meacher, Minister of State for Environment, at a public meeting in the House of Commons, May 1998.

Non-Aligned Movement

"Emissions trading for implementation of (greenhouse gas reduction) commitments can only commence after issues relating to the principles, modalities, etc of such trading, including the initial allocations of emissions entitlements on an equitable basis to all countries has been agreed upon by the Parties to the Framework Convention on Climate Change."

Heads of Government statement in relation to Article 17 of the Kyoto Protocol

European Parliament Resolution

This resolution was adopted by the European Parliament and was followed by a statement from the European Commission at the end of the negotiating session of the Fourth Conference of the Parties to the UNFCCC promising that future talks would address issues of particular concern to the EU such as "long term convergence and equity." The Parliament's Resolution:

"...calls on the Commission and the Member States to take the lead in brokering an agreement on a set of common principles and a negotiating framework beyond Buenos Aires; ...re-iterates and re-emphasises once again its view that a set of common principles will have to based on, inter alia:

1. agreement to have a worldwide binding limit on global emissions consistent with a maximum atmospheric concentration of 550 ppmv CO2 equivalent,
2. initial distribution of emissions rights according to the Kyoto targets,
3. progressive convergence towards an equitable distribution of emissions rights on a per capita basis by an agreed date in the next century, [...]

4. An adequately financed mechanism for promoting technology transfer..."

2. The international development targets

1. Halving the proportion of people living in absolute poverty by the year 2015

2. Access for children to universal primary education by the year 2015

3. Equal treatment for girls in education by the year 2005

4. To reduce by two-thirds the proportion of children who die before either their first or fifth birthday

5. To reduce by three-quarters the proportion of women dying as a result of having children by the year 2015

6. Access to family planning, and reproductive health measures for all men and women by the year 2015

7. All countries should produce national strategies for sustainable development.

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