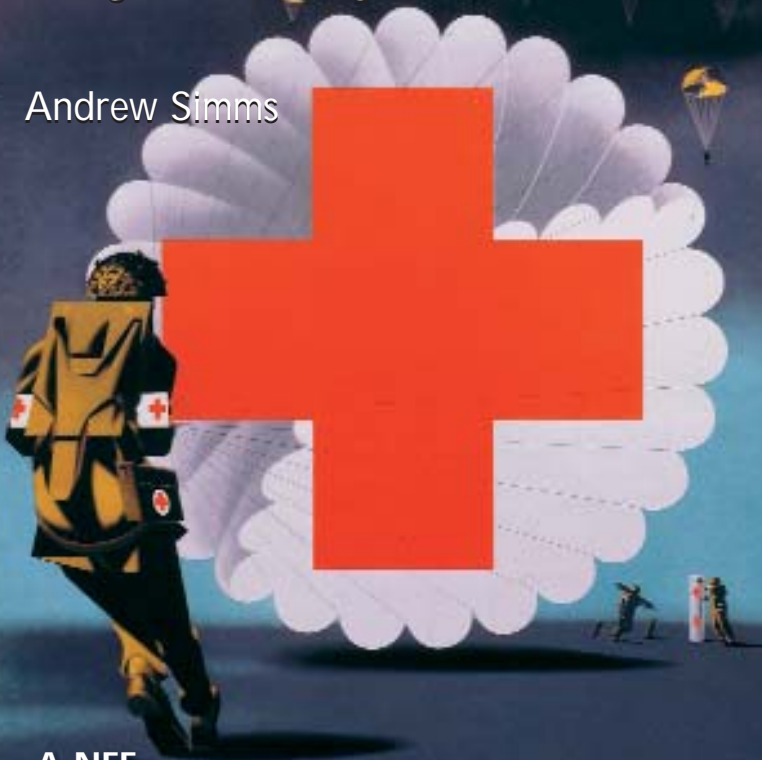


# An Environmental War Economy

The lessons of ecological debt  
and global warming

Andrew Simms



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The New Economics Foundation (NEF) was founded in 1986 by the leaders of The Other Economic Summit (TOES), which has forced issues such as international debt on to the agenda of the G7/G8 summit meetings. It has taken a lead in helping establish new coalitions and organisations, such as the Jubilee 2000 debt relief campaign, the Ethical Trading Initiative, backed by the Government and leading retailers, the UK Social Investment Forum and the Green Gauge “alternative” indicators of social and environmental progress.

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# Introduction:

## A World Turned Upside Down

*“But with sorrow we observe that, contrary to the... repeated advices formerly given by this meeting against an inordinate pursuit after riches, too many have launched into trades and business above their stocks and capacities; by which unjustifiable proceedings and high living, they have involved themselves and families in trouble and ruin, and brought considerable loss upon others.”*

***Quaker epistle, 1732, written after the South Sea Bubble***

Global warming is spilling over – seas over defences, rivers over banks, one wave of issues on top of another. The always-contentious balance of power between rich and poor countries is about to flip. A paradigm shift is emerging not from politics or ideology, but from a deep fissure opening up between two great continental plates – on one hand, the way the world does business, on the other, the limited tolerance of the earth’s environment that business depends on.

The flip will occur imperceptibly over coming years in conference halls that shelter a jumble of international negotiations. It will happen at ministerial meetings of the World Trade Organisation; and as the United Nations tries to drum up finance to pay for a long list of international development targets for the year 2015. It will happen at talks

## *Introduction*

on climate change and on implementing the Earth Summit agenda; at meetings of the Group of Seven industrialised countries, the World Bank and International Monetary Fund; even in the policy playgrounds of the bureaucratic elite – the World Economic Forum, the Bilderberg group and so on.

The reason for the impending change is alarmingly simple. Rich countries' unequal use of the global commons of the atmosphere is running up a gigantic ecological debt – a kind of “black hole” in the resource budget of the planet. That debt, and climate change itself, creates an entirely new context for all dialogue between nations. As poor countries become increasingly aware of the issue they will question the right by which rich countries, and their financial institutions, exert authority over them.

They may well seek compensation through international courts – or, perhaps, through reverse debt swaps, in which environmental debts are exchanged for rich country equity. They will also challenge the continuing status quo of unequal global wealth distribution, powered by the unequal use of our fossil fuel inheritance.

Climate change is propelling ecological debt to the centre of the globalisation debate. The shift goes deep. A plan to tackle global warming cannot succeed unless it concedes each individual's logical claim to the atmosphere. Over time, the equal distribution of property rights in the air above our heads will mean the biggest economic and geo-political realignment of recent history.

Reassuringly, precedents do exist for the lifestyle changes in rich countries necessary to tackle ecological debt.

Economic upheaval in wealthy countries will be similar to that experienced in wartime. Today, however, the enemy is a hostile climate, not another nation. But experience shows that the “environmental war economy” we need is not only possible: it could actually improve human well-being.

The international debt crisis is still an open wound between rich and poor countries. Yet out of it may be emerging not merely a way of coping with global warming but a means to spread prosperity more evenly around the world, and to benefit everyone.

# 1 The Meaning of Debt

*“And his lord was wroth and delivered him to the tormentors till he should pay all that was due unto him.”*

*Parable of the ungrateful servant*

What kind of debts do you have? Unpayable emotional debts to friends? Debts of favour that you “owe” until they get called in? Or financial debts to banks or loan sharks?

Every debt has a story. A poor country not paying its foreign debts becomes a financial pariah state, isolated and denied international assistance. A financially excluded individual driven into the arms of unofficial moneylenders faces physical abuse or worse. Bankruptcy or prison hang in the air for most ordinary debtors.

Ecological debt is probably the least recognised form of debt yet it threatens the biggest storehouse of value we possess, our home planet. It doesn't have to be paid back in the conventional sense. No matter how far an individual or country goes into the red, nothing forces them to change their behaviour. One of the defining narratives of our time tells us that the more we go into ecological debt – in other words, the more we consume over and above our personal “share” of the environment's carrying capacity – the happier we will be. It's not unlike an alcoholic, bent on suicide, going to his doctor and being prescribed a bottle of whisky and a loaded gun.

## Defining eco-debt

The principle behind ecological debt is that no one owns the atmosphere – it is a true global commons – yet we all need it. On that basis everyone has an equal right to its services – in one sense, an equal right to pollute.

The minimum cuts in total carbon dioxide emissions needed to stabilise carbon dioxide concentration in the atmosphere are estimated by the Intergovernmental Panel on Climate Change to be between 60 and 80 per cent of the pollution levels reached in 1990. Assuming an equal “right-to-pollute”, it is possible to calculate a threshold for sustainable consumption for each individual. If a country uses up fossil fuels at a rate higher than this *per capita* entitlement allows, it runs up an ecological, or “carbon”, debt.

From this perspective it's obvious that industrialised countries are running up a massive carbon debt, while poor, conventionally indebted, countries are actually in credit. If the compound carbon “interest” of two centuries of northern industrialisation could be calculated, the debt would be astronomical.

Carbon debt is also an indicator of unsustainable production and consumption. Fossil-fuel use and economic output broadly rise and fall together. It is thus possible to measure how much economic output depends on over-utilising these non-renewable resources and to give carbon debt illustrative economic values which also express resource efficiency. Such



calculations show conventionally indebted poor countries in carbon *credit* up to three times the value of their conventional debts. G7 nations, however, have economies dependent on the unsustainable use of fossil fuels, to the tune of trillions of dollars. In effect, this is a kind of debt – made up of stolen economic and environmental space.

Eco-debt raises many questions, ethical, practical and political, for industrialised countries. Should developing countries be compensated for the carbon debt and its consequences, and if so, how? Climate change is mostly caused by consumption in rich countries. In March 2001, Bangladesh's environment minister said that if official predictions about sea-level rise are fulfilled, one fifth of her nation would vanish underwater, creating 20 million "ecological refugees". Would the rich countries be prepared to accept them as environmental refugees, she asked?

Ecological debt reveals a world turned upside down. In one world, sober-suited government officials and financial commentators decry economic folly and irresponsible behaviour. They warn of moral hazard if more credit is extended or if debts are cancelled. In another, the *Financial Times*, club paper of the economic elite, produces a magazine called *How to Spend It* to help the confused over-wealthy with the difficult task of losing their money. Anyone lacking the desire for conspicuous consumption or failing to build status through material possessions is seen as letting the side down. They are the new class traitors in an age of triumphant individual wealth accumulation.

## End of the free lunch

Politically, the time for a reckoning is near. In the 1970s countries were encouraged to borrow, because interest rates were negative. But the brief period when petro-dollars made money too cheap not to borrow couldn't last. Similarly, it may once have seemed that borrowing from the environment carried no cost. But since the 1990s, and thanks to bodies such as the IPCC, we know better. Environmental interest rates, in the darkening form of climate change, are set to explode skyward. The reckless ecological credit boom is over, a huge ecological deficit has opened up and the books have to be put straight for the planetary budget.

Recriminations are inevitable. There is a very real danger that the policies necessary to preserve a habitable planet, unless implemented soon, could leave nations ungovernable. Fuel price riots in Europe were a foretaste of probably greater upheaval. Can we, in the rich industrialised countries, accept the consequences of our ecological debts? How can we design and implement the processes by which to balance the environmental budget and adjust to sustainable lifestyles? And how can we make the shift to managing the world economy against new, inescapable physical realities – maximising the returns to all of us who are shareholders in the global environment, rather than the few who are shareholders in multinational corporations?

## 2 What is Happening to the Climate?

After more than two centuries of intensive and unrestrained fossil-fuel burning, humanity's free lunch at the climate's expense is over. But the global economy has developed a fossil fuel addiction. That creates two problems. As with any narcotic addiction there is damage to the body – in this case the planet's atmosphere, in the form of global warming. There is also the issue of withdrawal, its symptoms complicated by the “cry-wolf” dilemma.

Since the crude early predictions of resource exhaustion, in works such as *The Limits to Growth*, were proved wrong it has been too easy to dismiss subsequent warnings. But the issue has not gone away. And as the oil runs out, managing the profound withdrawal that will affect all major economies could make the recent turn-of-the-millennium European fuel protests seem the small change of politics. Unless public opinion is prepared in advance, and policies are in place to deal with climate change, countries may simply become ungovernable.

### The fuel is running dry

Discoveries of new oil sources peaked in 1965, the year I was born. In less than half a lifetime, 36 years later, the growth in

oil production has also peaked and begun its long decline. A century shot through with conventional war ended just as an indefinite battle with the climate began.

In 1998, adding together total world energy demand over the next few decades with known or anticipated available fuel sources, the International Energy Agency pinpointed a gap between supply and potential demand. It filled the gap with what it called “unidentified unconventional” fuel sources. Unfortunately this fuel doesn’t actually exist: it was an exercise in creative accounting to stop policy makers panicking. Over the next few decades new projections fill the supply-demand gap with fossil fuels that have only a five per cent chance of being discovered.

Yet while fuel projections have taken on an unreal air, climate change is fast becoming reality. Research by the UN’s Intergovernmental Panel on Climate Change (IPCC) in early 2001 suggests the atmosphere may warm by as much as 6 degrees Celsius over land areas by 2100 – more rapidly than previously expected. A letter co-signed by the under secretary of the US National Oceanic and Atmospheric Administration and the chief executive of the UK Meteorological Office concluded: “The rapid rate of warming since 1976... is consistent with the projected rate of warming based on human-induced effects. We continue to see confirmation of the long-term warming trend.”

If, however, as many scientists expect, “positive feedback” occurs in the environment because of changes already set in

motion, warming could progress even faster. One scenario suggested by the IPCC and involving the melting of Northern ice fields would lead in the long term to a seven-metre sea-level rise, submerging the world's major capital cities.

People in the world's poorest regions are most at risk. By 2080 it is predicted that over three billion people across Africa, the Middle East and the Indian sub-continent will suffer an increase in "water stress". Agricultural yields in Africa are expected to drop and hunger rise. Both droughts and floods will increase in frequency. And according to the UK's Meteorological Office, the most dangerous strains of malaria will pose a risk to 290 million more people as warmer, wetter climates encourage mosquitoes to breed.

The resources available in poorer countries for recovery will be hit hard by the rising economic costs of disasters. Although finding precise figures is difficult, one leading British-based development agency, Christian Aid, estimated that climate-related disasters over the next 20 years could cost developing countries £6.5 trillion – around ten times total anticipated aid flows. In February 2001 the financial services initiative of the UN Environment Programme estimated the extra costs from disasters attributable to global warming to be US\$ 304.2 billion annually.

A director of CGNU, one the world's six largest insurance companies, highlighted recent trends at the UN's climate change conference at The Hague in November 2000. Using

projections based on data from reinsurance giant Munich Re and published in the journal *Environmental Finance*, Andrew Dlugolecki showed that the costs of natural disasters driven by climate change could actually overtake the value of total world economic output by around 2065.

The difficulty of capturing the real costs of disasters, however, means that even these projections are likely to be significant underestimates. In poor countries where many cannot afford insurance, losses easily go unaccounted; damage to capital goods cannot, in any case, indicate the value of lost lives, skills and confidence. Less than 10 per cent of private property is insured in the developing world. Work by economist Paul Freeman suggests that the indirect and secondary impacts of disaster “may be twice the size of the direct losses”.

Mainstream scientific opinion now backs such scenarios. In May 2001 a joint statement of 17 national science academies, ranging from the UK to China, Brazil and Australia, said human-driven global warming was “evident” and would increase “intense” weather events and drought. It would damage “agriculture, health and water resources”. Staff from the authoritative Hadley Centre for Climate Research in the UK made detailed projections of likely damage – and the levels are enormous. Sadly there are still people in positions of power and influence who would like us to ignore the warning signs.

## The Humpty-Dumpty factor

A core “contrarian” argument of those who seek to deny the need to act in the face of climate change is that orthodox economic growth can solve everything. They say we must keep growing in order to generate wealth, so that we can pay for the damage – in this case climate change – created by growth...

The argument has a perverse logic. Applied to a person, it suggests that an individual must work until they make themselves sick, in order to buy the medicines needed to return to work. More simply still, we must destroy the planet, to pay to put it back together.

But there are two broader objections to these arguments. First, trusting to growth alone – given the unequal dynamics of economic globalisation – is both an inefficient and highly unreliable method to give the world’s poor access to the resources they need to protect themselves from climate change. Second, there is the Humpty-Dumpty factor. If we break the climate, in other words, can we put it back together again? Runaway climate change, with all its different symptoms – from melting ice-sheets to the atrophy and death of ecosystems – feeding off and reinforcing each other, is now a real possibility. The spectre then arises of a problem beyond the capacity of humans to control. The smallest possibility of irreversible change makes the risk of inadequate action too great.

## Why efficiency won't work

The main get-out clause for the business-as-usual response to climate change rests on efficiency improvements and conservation gains. These, it is argued, would allow us to use energy far more efficiently, winning the necessary cuts in carbon dioxide emissions. Markets will sort out the problem. Price mechanisms will drive greater resource conservation. Technology will drive efficiency and no limit need be put on conventional growth.

Each proposal has a fatal flaw. Price signals work on a different, much shorter, time horizon than grand shifts in the balance of the environment. In climate terms the warning lights will come on only when the patient has already, and irretrievably, passed the critical point. Relying on price alone also disproportionately hurts people in poverty.

Because of this gap, and the way the current system undervalues or “discounts” the future, a time lag of several decades has already opened up between expected demand for energy and the ability to meet it with renewable sources. Under market mechanisms and distorted public subsidies there has been insufficient incentive to build a sector that will be “essential” in a relatively short period of time.

Crucially, there is a strict limit to efficiency gains that technology can deliver. Astrophysicist Alberto di Fazio has calculated how much increasingly efficient machines and



production methods can do to hold off climate change. His conclusions are pessimistic.

Di Fazio calculates that the global economy doubles in size roughly every 17 years. The correlation between the size of the global economy, measured by “world industrial product”, and carbon dioxide emissions is, he says, “astoundingly high... practically total correlation”. To make the planet fit for human life, carbon dioxide in the atmosphere was converted by natural processes into fossil fuel reserves over the course of 180 million years. At the start of the process the sea level was 70–90 metres higher and the temperature 10 degrees warmer. According to di Fazio, humanity is converting fossil fuels back into the atmosphere “a million times faster”.

Mainstream economists and policy-makers seem to assume that efficiency can grow indefinitely. This premiss allows them to believe that carbon dioxide emissions can be cut without either renouncing fossil fuels or limiting conventional economic growth. However, even under the most impossibly optimistic scenario, bringing us close to the limits of the laws of thermodynamics, the best technology can do is not very much at all. Remembering that in climate change we need to think in terms of geological timescales – the “long now” – maximum efficiency gains in the best-case scenario would only postpone higher greenhouse gas levels by 24 years. A more realistic assessment of global best efforts, taking account of the difficulty of collective political action, is that the delay would be “negligible”.

Trusting to efficiency will not allow “any significant or appreciable control of the coming climate crisis”, di Fazio concludes. From a strictly technical perspective, “either we switch to non-fossil fuel sources of energy [which because of an implementation time-lag will take several decades to meet demand] or we limit the world industrial product, or both in some proportion.”

## A Faustian development bargain

The decisions society faces over climate change touch on some profound aspects of modernity – many of them, for the American academic Marshall Berman, summed up in Goethe's famous tragedy *Faust*.

*Faust*, according to Berman, is a parable for development and the growth economy. Faust's character has many incarnations, but in the last “he will work out some of the most creative and some of the most destructive potentialities of modern life; he will be the consummate wrecker and creator, the dark and deeply ambiguous figure that our age has come to call, ‘the developer’”.

Goethe's tragedy dramatises the central contradiction of the global economy. Although Faust “is convinced that it is the common people, the mass of workers and sufferers, who will benefit most from his work”, he is “not ready to accept responsibility for the human suffering and death that clear the way”. Goethe's point, explains Berman, is that “the

*What is Happening to the Climate?*

deepest horrors of Faustian development spring from its most honourable aims and its most authentic achievements.”

Similarly, the promise of better lives flowing from unrestrained economic growth unwittingly unleashes forces that do more harm than growth can do good.

The aim of growth ignores the cost of the means and then loses sight of the original ends. Faustian development “entails seemingly gratuitous acts of destruction – not to create any material utility but to make the symbolic point that the new society must burn all its bridges so there can be no turning back”.

### 3 The Roots of Ecological Debt

The idea of ecological debt has several roots. It is a logical consequence of applying both long-established norms on the equality of people in law, and new scientific knowledge about the natural limits of the world around us. Developing countries make another case – that rich nations have systematically expropriated their natural resources for profit, either without paying at all, as in the case of the “biopiracy” of plant, animal and human resources, or by paying too little. This case, they argue, is supported by the chronic long-term depression of primary commodity prices in international markets dominated by multinational companies, mostly from the rich Northern countries. Finally there is the issue of fossil fuel use and climate change.

In some of its fundamentals, however, the eco-debt debate is not a new one. In the nineteenth century observers of the British empire noted that “all parts of the world are ransacked for the Englishman’s table.” The 1960s saw a second Malthusian wave of anxiety about unsupportable population levels: Georg Borgstrom shone a light on the “ghost acres” that countries such as Britain depended on in other lands to feed their people. Britain required an even larger area of land overseas to meet domestic demand than it had under cultivation at home.

In the 1970s Ivan Illich in *Energy and Equity* broadened the debate beyond the point that action was needed simply to avoid environmental collapse. He argued that a society based on low energy use and equal access would be more convivial and supportive of democracy. In the late 1980s enquiries into equity and geographical carrying capacity introduced the language of “environmental space” to the discussion – although it failed to form the basis of many conversations outside the Netherlands and Scandinavia.

At the start of the 1990s the Canadian geographer William Rees began talking about “ecological footprints.” It became possible to look at the size of a given “hinterland” needed to support an industry or population with natural resources. The answers these new analytical tools produced were often obvious. Rich people, and big cities, took up a lot of space – they needed many “distant elsewheres” for their survival and growth.

## Origins of eco-debt

It was at this point, under the shadow of a debt crisis that had lasted at least a decade, that a handful of South American academics pointed to the exploitation of their countries’ natural resources and began to speak about ecological debt.

Ecological debts may be very broadly defined. They include pollution, “theft” of resources and disproportionate use of

the environment. Ecuador is now home to a campaign to reclaim its eco-debts. Some descendants of the South American Indians colonised by European powers 500 years ago have also now “reconstructed”, as a loan, all the gold and silver extracted from their hills and rivers and taken back to Europe. Five centuries of compound interest have turned it into a very large sum, they point out.

At the same time a growing awareness that there are global commons which provide “public goods”, such as the absorptive capacity of the atmosphere, has highlighted, particularly in the developing world, an important contradiction. There are “goods” to which we all have an innately equal claim, yet which are currently being used very unequally.

But it is the increasingly sophisticated measurement of environmental tolerance that has both sharpened the debate and given us a handle on its dimensions. Where climate is concerned there is now a good understanding of how much pollution the atmosphere can absorb before its balance is disturbed. The chief pollutant, carbon dioxide, is fundamental because it is a good measure of economic activity. As already noted, the two are “hard-wired” – more economic activity means more carbon dioxide, which means more climate disruption. If a global commons such as the atmosphere, to which we all have an equal claim, is overused and degraded by one group of people, these people build up an ecological debt to the wider community which depends on the commons.

Attempts have been made to assign monetary values to ecological debt. In the case of global warming, however, the debt is real and demonstrable – the concentration of greenhouse gases in the atmosphere. While this may imply compensation to developing countries, it also demands a plan of action to eradicate the debt altogether.

## The heat-death of capitalism

Eco-debt challenges many of the things we take for granted in the global economy. It may, for example, mean a greater emphasis on sharing – in this case, sharing out the limited opportunities for economic development built on fossil fuels. It may also mean questioning some of the driving forces of the global economy – the growth imperative, capital accumulation and so on. One way of expressing this is to use the language of economists, like Robert Heilbroner, who points out that climate change generates “externalities” that are so huge they put obstacles in the way of “the accumulation process on which the system’s life force depends.” Another, larger, conclusion – and one that brings with it some unfortunate ideological baggage – is that global warming means the death of capitalism as the ultimate co-ordinating framework.

If that happens, what will replace it? The economy we have now is the result of countless minute decisions made by individuals supposedly maximising their “utility”. Measured mostly by money or status, this results in ever-increasing consumption of goods and services. Because such short-term

decisions are not informed by a knowledge of their long-term consequences, no mechanism exists to feed back the damage they cause. Each decision is apparently innocuous; gathered together, over time, they are devastating.

The process of measuring eco-debt, and managing its “reparations”, would fill this gap. It would provide the information we now lack. We would no longer be trapped in the moment: we would be living in the “long now”. But how do we overcome the pursuit of maximum instant gratification? The answer is an economy driven, not by individual wealth accumulation, but by an even stronger emotion – the protection of family and the collective desire for survival.

## Sustainability adjustment programmes

Over the last few decades many poor countries have had to endure the trauma of market-led economic change or “structural adjustment” programmes (SAPs). Yet we may be able to apply lessons learned from old, failed SAPs in restructuring the economies of the rich nations along sustainable lines. Since these states were the original architects of adjustment, the process would not be without its ironies. In effect, we would be implementing a different kind of SAP – a sustainability adjustment programme.

Conventional adjustment is a two-stage process. Stabilisation comes first, followed by a fundamental re-gearing of the



economy. In tackling ecological debt and establishing environmentally sustainable economies, the first task would be to remove major distortions. Standard economic measurements do not include social and environmental costs. The formal, money economy, for example, takes a free ride on the informal or non-money economy : family care for workers is unpaid, natural resources are spent like a one-off family inheritance. Second, the economy is not only hugely over-valued – it ignores the depreciation of environmental assets, for example – but also heavily skewed. Full-cost accounting would feed better information back to the economy, returning balance to the nation's economic accounts.

Adjustment involves a much longer, negotiated process. It implies two key approaches: first, reforms to develop greater economic democracy; secondly, setting environmental limits – primarily climatic tolerance – within which economic planning can operate. Essentially these changes aim to restore the balance of environmental payments – resulting from the trade between human economic activity and the natural environment. Before a balance can be achieved, the ecological deficit, manifest in the damaging accumulation of carbon dioxide in the atmosphere, must be eliminated.

The adjustment process described must be set within an orderly framework. The best guide to how this might work is the approach known as contraction and convergence, which is explained at the end of this chapter. But it's worth examining how feasible this approach is.

## The US – backing into a corner

The United States is the world's biggest polluter and the nation most resistant to change. When it pulled out of climate talks in early 2001 there was uproar. But if the US had stayed within the process initiated by the Kyoto Protocol of 1997 it would almost certainly have continued to negotiate in bad faith, as it did at The Hague in late 2000. The carbon-laundering it proposed then, claiming domestic forests and farmland as carbon “sinks”, to be counted as credits and offset against emissions reductions, could have led, not to cuts in emissions, but to an overall 14 per cent increase in carbon dioxide pollution.

Under the Bush administration the US has used two arguments to defend its withdrawal from international negotiations. One scarcely merits discussion; the other opens the door for movement.

The first US argument is that it cannot “afford” to act. But if the wealthiest and most resource-hungry country in the world cannot “afford” to act, who can? Certainly not India where the average citizen emits 20 times less carbon dioxide than their US counterpart, or the average Mozambican, responsible for 300 times less.

The second American position stems from the so-called Byrd-Hagel resolution adopted in 1997 by the US Senate. It commits America to “limit” or “reduce” emissions only if poor countries are also involved.

The Byrd-Hagel resolution accepts that global emissions must be both controlled and reduced. The implication is that a total global emissions budget must be agreed, capping greenhouse gas concentrations in the atmosphere. Global emissions will then be lowered until they reach a point within the environment's limits of tolerance. The corollary is that the US, committed by its own declaration of independence to human equality, can embrace the contraction and convergence model pioneered by the London-based Global Commons Institute.

## Contraction and convergence

According to Sir John Houghton, chair of the Intergovernmental Panel on Climate Change, global greenhouse emissions need to be reduced by at least 60 per cent in less than 100 years. If governments agree to be bound by such a target, it is possible to calculate for each year over the next century the (diminishing) amount of carbon dioxide and other greenhouse gases the world can release, to stay on target for a 60 per cent reduction. This is the contraction part of the equation.

Convergence describes how each year's tranche of the global emissions budget is shared out among the nations of the world. The process is managed to ensure that every country converges on the same *per capita* allocation of carbon dioxide – the same personal emissions “allowance” – on the same date. The date is negotiable – Houghton suggested 2030.

Countries unable to manage within their allocations would, subject to agreed limits, be able to buy the unused parts of the allocations of other, more frugal, countries. Sales of unused allocations would give the countries of the South the income to purchase or develop zero-emission ways of meeting their needs.

“Contraction and convergence” provides an effective, equitable and efficient framework within which governments can work to avert climate change. The countries of the North would benefit from the export markets created by restructuring. The whole world would benefit by slowing the rate of damage. Its potential as an antidote to global warming has been widely endorsed, not least by industries such as insurance which are in the front line of climate change. Even some of the more progressive fossil fuel producers have acknowledged that it may offer a promising way forward. But “contraction” has a disturbing sound to it – it implies less rather than more. The next chapter explains why less may, in practice, turn out to be more.

## 4 An Environmental War Economy

*“In planning any operation it is vital to remember and constantly repeat to oneself two things: ‘In war nothing is impossible provided you use audacity,’ and ‘Do not take counsel of your fears.’”*

*General George S. Patton Jr.*

*“It is important also to consider, that the surest means for avoiding war is to be prepared for it in peace.”*

*US Justice Story*

The enemy is not another country, but a hostile atmosphere that needs to be disarmed. Can it happen? The greatest challenge of sustainable development is to reduce consumption levels in rich countries. Cynics say it is impossible for the comparatively wealthy to give up their lifestyles. The US appears ready to let the world burn to defend its “way of life”. Yet preserving a habitable atmosphere is, or ought to be, non-negotiable. And history shows that while not easy, behaviour can be changed by focused leadership, public education and a sense of common cause.

In a letter to *The Times* newspaper in May 1940, J.R.B. Branson wrote as follows:

*In view of the publicity you have accorded to Mrs Barrow's letter in your edition of to-day, I hope that you will spare me space to say, as an advocate of the consumption of grass-mowings, that I have eaten them regularly for three years, and off many lawns. The sample I am eating at present comes off a golf green on Mitcham Common.*

History does not record what happened to the health of J.R.B. Branson as a result of his grass-eating habit, but the pall of austerity that held wartime and post-war Britain is not as miserably straightforward as it might seem. My parents grew up through the war and learned the habits that would stay with them until today. Words from magazines like *Good Housekeeping* in 1942 rang in their ears. "Learn to regard every type of waste as a crime," wagged the finger. "If you have the will to win/ Save your Rubber, Paper, Tin," intoned the rhyming copywriters.

When as a teenager I became an active environmentalist my mother reflected on the new environmentalism. "I think we were the first greens", she said, listing, from a time when most resources were in short supply, the many methods they developed for saving fuel, conserving food and recycling objects. I think she was mildly perplexed that a new generation had re-invented values that were second nature to her own. She was also amused that they preached to anyone who would listen with the enthusiasm of explorers believing they had discovered a new continent – whereas she knew people had been living there for years.

In the same year (1940) that readers of *The Times* were advancing the cause of dietary grass, the Ministry of Food published *Food Facts No 1*. “Grow fit not fat on your war diet!” it urged the British public. “Make full use of the fruit and vegetables in season. Cut out ‘extras’, cut out waste; don’t eat more than you need. You’ll save yourself money, ... and you’ll feel fitter than you ever felt before.”

## Sacrifices and benefits

The upbeat and hopeful tone of the government was part of a double strategy, combining persuasion and legislation. And it proved to be more than self-serving rhetoric. The combination of moral leadership and rationing had two significant results. People did, indeed, become fitter and healthier; and consumption of resources was drastically cut. The awareness that each had a personal role to play spread through the population. Lady Reading’s comments in July 1940 have an unintended resonance today, in the context of global warming: “Very few of us can be heroines on the battlefield, but we can all have the tiny thrill of thinking as we hear the news of an epic battle in the air, ‘Perhaps it was my saucepan that made a part of that Hurricane’ ”.

Every aspect of people’s lives came to be scrutinised. The Board of Trade issued an advisory leaflet in 1943, *Getting Ready for Baby*, that exhorted the population to “Never buy more napkins than you really need. Remember fair shares for others, too.” Non-government groups also took part in the

refashioning of people's behaviour. In *Feeding Dogs and Cats in Wartime* the RSPCA advised people: "Potatoes are plentiful and if you put in extra tubers when digging for victory you will not have it on you conscience that shipping space is being taken for food for your animals."

There was nowhere to hide from the message that the defeat of an external threat depended on how you carried out the tiniest act in your daily life. Then, as now, one of the greatest challenges was fuel conservation. The government dubbed it "The Battle for Fuel". If you stayed in a hotel in late 1942 and decided to wash away the anxiety of war-time Britain you would have been confronted with this sign: "As part of your personal share in the Battle for Fuel you are asked NOT to exceed five inches of water in this bath. Make it a point of honour not to fill the bath above this level."

The Ministry of Fuel and Power would let no one forget that "Britain's 12,000,000 households are 12,000,000 battle fronts in this great drive to save fuel". People were told to lag their hot-water tanks properly, save milk bottle tops and recycle tyres and inner tubes. *Good Housekeeping* magazine reminded its readers in 1943 that "few books bear second reading – comb your bookcase for salvage". (Would any of today's book reviewers disagree?) The National Savings Committee told people: "The 'Squander-bug' causes that fatal itch to buy for buying's sake – the symptom of shopper's disease."

For Joanna Chase writing in *Sew and Save* the cause was taken to evangelical lengths. "Gone are the days when any of



us have either the money or the space to possess six of everything in our undies drawer. But you should try to have three of everything, one set on your back, one in the wash, and one clean and ready for any emergency that may crop up.” And in 1942 a rail companies’ advertisement contained the lines: “At this most important time/Needless travel is a ‘crime’.”

But the barrage of information was a success. A combination of emergency powers brought in during the war and a concerted public campaign to change attitudes cut waste dramatically. By April 1943, for example, 31,000 tonnes of kitchen waste were being saved every week, enough to feed 210,000 pigs. Food consumption fell 11 per cent by 1944 from before the war. Scrap metal was being saved at the rate of 110,000 tonnes per week.

Between 1938 and 1944 there was a 95 per cent drop in the use of motor vehicles in the UK. Even in the United States fuel was strictly and successfully rationed to eliminate unnecessary travel. Such a drop exceeds even the deepest cuts in consumption that the most pessimistic climate watchers say is needed in wealthy countries today. In a similar period, 1938–1943, the use of public transport increased by 13 per cent.

Across all goods and services consumption fell 16 per cent. Reductions at the household level were much higher. In just six years from 1938 British homes cut their coal use by 11 million tonnes, a reduction of 25 per cent. The Ministry for

Information meanwhile produced *Data for the Doubtful* for anyone inclined to question the massive conservation drive.

History also judged kindly the overall effect on people's health of the new ways of living. The period from 1937 to 1944 saw a dramatic fall in infant mortality, a clear indicator of more general improvements in the nation's health. At the start of the period around 58 children per 1000 died before their first birthday. By 1944 that figure had fallen to 45 per 1000. By contrast, today's shift towards a high-energy, high-mobility economy, and the resulting growth in traffic volumes, is damaging health as well as conviviality. By 2020, for example, transport is predicted by the International Red Cross to become the third most common cause of death and disability.

## Lessons of war economies

How relevant is Britain's experience during wartime to the challenge of climate change? It is easy to imagine the cry that would go up today when people realise the degree of cuts in consumption necessary to preserve and share a habitable planet. To many it will seem a sacrifice too far. Most decision-makers live far removed from the murderous reality of climate change. Few people in industrialised countries – least of all those whose houses have *not* been recently flooded – will regard the threat of global warming as urgent enough to justify draconian disturbance of their private lives and consumption habits. To Bangladeshis and Mozambicans living in flood zones, however, it might seem more critical.

Yet the situation in the global environmental war economy is not so different from the dilemma that faced individuals in Britain's war economy. As Hugh Dalton, president of the Board of Trade, put it in 1943, "there can be no equality of sacrifice in this war. Some must lose their lives and limbs, others only the turn-ups on their trousers." Impacts may differ, in other words, but the acknowledgement of a shared need remains and unifies.

Today's major industrial powers all have relatively recent experience of war economies. In 1942 the US limited gasoline to 3 gallons per week for "non-essential" vehicles. Germany was rationed throughout the war: Japan introduced forms of rationing in 1941.

Rationing in the US was motivated by a patriotic desire to ensure that both citizens and soldiers received a fair distribution of goods. Gasoline entitlement was related to how necessary a person's vehicle was to them. When the US implemented energy rationing at the time of the first OPEC oil crisis in the early 1970s a similar logic was used. The Congressional declaration of purpose announced that "positive and effective action" was needed to protect "general welfare... conserve scarce energy supplies" and "ensure fair and efficient distribution".

Faced with a crisis in which individuals are asked to subordinate personal goals to a common good, they can, and do, respond. This is the lesson of the British and other war economies and it may also prove the rallying cry of a new

environmental war economy. History shows that even though the changes required may be big ones, we are capable of making them – and they may turn out to have unlooked-for benefits. Buried within the “sacrifices” made by ordinary people during wartime are the beginnings of a framework, and a plan, to meet the challenge of global warming.

## 5 Why We Need to Act Now

At the fifth anniversary of the Earth Summit in 1997 the United Nations said the next quarter century was “likely to be characterised by declining standards of living, (and) rising levels of conflict and environmental stress”, unless there was radical change in the way we produce and consume. At the same time a special session of the UN General Assembly noted only “marginal progress” since the original Earth Summit in 1992.

The next few years will prove critical. The United Nations hosts a Finance for Development meeting in 2002, along with the tenth anniversary of the Earth Summit. Climate change negotiations are passing a crucial stage. The World Trade Organisation, meanwhile, is trying to entrench a business-as-usual approach to the global economy.

Business-as-usual is at best a form of reckless environmental speculation, at worst an acknowledgement of failure. But as this pocketbook has tried to show, change is both necessary and possible. The planet’s economy does not have to be run like the Titanic, with the masses locked away in staterooms while the travellers in first class enjoy a last few minutes of luxury. The world’s poor lose their lives and livelihoods when climate change strikes. In the North, by contrast, governments quail at the prospect of persuading people to switch from cars to the train. We are surely capable of a

bolder vision – one which is both more generous but also, in the long-term, more realistic.

Ecological debt suggests a fundamental realignment of who owes whom in the international economy. A new mood of humility on the part of rich countries needs to characterise their negotiations with less developed countries. Even the old, largely unmet UN aid target of 0.7 per cent of gross national product (GNP) becomes irrelevant against the scale of resources that poor countries will need to mitigate the impact of climate change.

But to get even close to the necessary cuts in fossil fuel consumption requires governments first to make and then to win the argument for action in public. Then change needs to happen within an orderly and logical framework such as contraction and convergence.

Is any of this feasible? The evidence suggests that it is. In the recent past the US conserved energy to protect “general welfare” and “ensure fair and efficient distribution”. In wartime they called it rationing. Today we would call it the issuing of “equity” in the global economy. Developing countries would for the first time receive their fair entitlements.

Everyone has to live within the limits of acceptable behaviour: climate change merely introduces a new but significant parameter. This applies as much to businesses as to people. Throughout history business has adapted to new regulatory environments. Action taken by the small

Caribbean island of St Lucia shows what is possible. In the front line of rising sea levels, it has committed itself to a programme of 100 per cent renewable energy.

## A three-point plan

The alternative – the business-as-usual scenario – could well mean that “development”, as it has been defined over the last half-century, ceases to exist, overwhelmed by the forces of climate change. To prevent this happening, we need to take three steps. First we must recognise ecological debt, establishing an internationally agreed method of measuring it, centred initially on climate change and the use of fossil fuels. We should examine its implications for international relations. One way of doing this would be an international commission to investigate its consequences for debt, trade, aid and other economic links. Finally we need to prepare for environmental war economies. Each industrialised country should devise a sustainability adjustment plan (SAP) to balance its environmental budget over an agreed period. These would be based on equal rights to the atmosphere, within a framework of emissions cuts needed to halt climate change.

Industrialised countries should arrive at the 2002 Earth Summit anniversary with clear plans for achieving reductions of 60–90 per cent in domestic carbon dioxide emissions. All countries committed to the Earth Summit process should have a National Strategy for Sustainable Development in place by 2005. Most countries already have such plans: they

could well form the basis of the new sustainability adjustment programmes.

These are radical proposals: to many people they may seem impracticable. But the alternatives are stark. In the short term the toll of climate-related, man-made disaster will kill millions, leave large areas of the planet uninhabitable, widen the gap between rich and poor, turn frustration among developing countries into overt anger and fuel the growth of conflict, civil war and mass migrations. In the longer term, when measures do finally have to be taken, even in the developed world, the structure of government may be at risk. And although it may take the equivalent of an environmental war economy to balance the books, it's clear that unless the carbon debt is tackled, we will all be environmentally bankrupt.



## 6 The Arguments for Eco-Debt – A Summary

The reality of global warming is now accepted. Studies by the UN's Intergovernmental Panel on Climate Change suggests the atmosphere may warm by as much as 6 degrees Celsius over the next century. Research suggests that the cost of disasters driven by climate change could exceed total world economic output by 2065 at the latest. The poorest people in the poorest countries will suffer disproportionately but the rich will also be affected. In the long term the integrity of governments may be at risk.

Action commensurate with the scale of the problem is non-negotiable. History also suggests it is possible. The wartime economy of Britain, and other states, showed that where government and people unite in the perception of a shared crisis, radical changes in lifestyle are possible. In Britain, huge savings in energy and resources were achieved: people were also healthier – and, some argue, happier. Low-energy lifestyles may be more convivial. An “environmental war economy” could achieve similar results.

Ecological debt creates a new framework to understand climate change and to design action plans to halt it. Its fundamental principle is that the atmosphere is a global “commons”, in which everyone has an equal share. Agreeing

what each person's carbon dioxide "allowance" should be, and then working out a plan to equalise them, provides the basis for an equitable global adjustment programme to cut greenhouse gas emissions and halt global warming.

The best way of achieving this is through "contraction and convergence". First, the world must agree on a collective target for reducing greenhouse gas emissions – for example, 60 per cent by 2030. Then, each country agrees to "converge" on this date by equalling out *per capita* emissions. It may choose to do this by introducing a *sustainability adjustment programme* (SAP). These can draw on the experience of the orthodox – and for developing countries, often traumatic – structural adjustment programmes. The difference will be that the sustainability adjustment programmes will be aimed, not at maximising economic growth at all costs but at optimising growth within environmental limits.

A policy framework such as contraction and convergence is a way of sharing out, logically, the atmosphere's ability to soak up pollution. It is the only way to introduce coherence on curbing climate change to all major international economic negotiations. Failure to act will lead to worldwide environmental bankruptcy.

To achieve this three steps need to be taken. We must:

- **Recognise ecological debt. Establish an internationally agreed measure of ecological debt, initially focused on climate change and the use of fossil fuels.**

- **See how it changes international relations. Convene an international commission to investigate the implications of ecological debt for conventional relationships on debt, trade, aid and other economic links.**
- **Prepare for environmental war economies. Each industrialised country could devise a sustainability adjustment plan (SAP) to balance its environmental budget over an agreed period. SAPs would be based on equal rights to the atmosphere, within a framework of the emissions cuts needed to halt climate change.**

In the immediate future, industrialised countries should arrive at the 2002 Earth Summit anniversary with clear plans for achieving reductions of 60–90 per cent in domestic carbon dioxide emissions. All countries committed to the Earth Summit process are supposed to have a National Strategy for Sustainable Development in place by 2005. Most countries already have such plans: they could well form the basis of the new sustainability adjustment programmes.



Climate change threatens over the next century to overwhelm the planet's life-support systems yet we have failed to respond to its challenge. On the one hand, the rich countries of the north, the United States in particular, live lifestyles heavily dependent on the fossil fuels that cause global warming – but their politicians fight shy of change. On the other, the poorer people of the South bear a much smaller responsibility for climate change but will suffer far more from its effects. It is a dangerously divided world – a world “turned upside down”, says Andrew Simms in this latest NEF Pocketbook – but there is a way forward. The wartime experience of living “lightly” on the earth – reducing waste and conserving resources in the face of a common enemy – shows that modern mass democracies are capable of meeting such a life-threatening emergency. By building on this experience, the rich world can not only tackle the new enemy – a hostile climate – but start to pay off its environmental “debt” to the planet.

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