

Ecological Debt – Balancing the Environmental Budget and Compensating Developing Countries

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Every year we witness the hand-wringing of the G7 heads of state over the seemingly intractable poor country debt crisis. But at the 10th anniversary of the Earth Summit in 2002 they may be trapped in negotiations over a different and more dangerous kind of debt, a debt that they carry themselves.

A Copernican revolution is taking place in our understanding of who owes whom in the international community, and what should be done to correct the problem. It is being driven by factors beyond the ability of any individual nation to control. Ten years from now, an embattled G7 could be sitting down to account for the new and enormous carbon debt they owe the developing world for the consequences of climate change, and to discuss how they intend to settle their arrears. This is not an abstract theoretical exercise. The economic costs of global warming are rising dramatically, but falling on people unevenly, and with cruel political irony.

In March 2000 a woman who gave birth while clinging to a tree to escape Mozambique's floods diverted attention from the country's real tragedy. The large but unknown number of deaths, the estimated 1 million people displaced, the loss of countless livestock and crops, and the immeasurable damage to infrastructure added to the existing burden of un-payable foreign debt.

Servicing foreign debt has drained Mozambique of precious resources for many

years. Even after relief, Mozambique could still have to spend US\$ 45 million a year on debt servicing – more than it spends on either primary health care or basic education. What happened in Mozambique is mirrored with variations from Venezuela to Bangladesh.

According to the reinsurance giant Munich Re, the number of great climate-related and flood disasters quadrupled during the 1990s compared to the 1960s, while resulting economic losses increased eight-fold over the same period. If that trend continues we would arrive at the bizarre situation by about 2065 where the costs of natural disasters driven by global warming would overtake the value of gross world product. Meanwhile, the financial services initiative of the UN Environment Programme estimates that the extra economic costs of disasters attributable to climate change are running at over \$300 billion annually. The best guess of development groups is that climate change could cost developing countries up to £6.5 trillion over the next 20 years, many times anticipated aid flows.

In spite of these dramatic statistics, the 'true costs' of global warming are still not captured. Economist Paul Freeman is quoted in the recent World Disasters Report 2001 suggesting that the indirect and secondary impacts of disasters "may be twice the size of the direct losses". This is because many costs go unaccounted in poor countries. People cannot afford insurance, and how do you price the loss of skills, lives and confidence that follow disaster?

KEY CHALLENGES FOR DEVELOPED COUNTRIES:

- **Accept the existence and the scale of ecological debt, develop accounting systems to measure it, and use WSSD as the starting point for dialogue on appropriate compensation for developing countries**
- **Start thinking about how to overcome the social, political and technological barriers to achieving necessary cuts in CO₂ emissions**
- **Current economic goals will lead to massive global destabilisation and continuing environmental catastrophe; new strategies need to be developed to raise public awareness of the problem and change economic expectations**
- **Provide global leadership in developing new models of economic adjustment to tackle carbon debt and balance our environmental budget**

Damage to human life is very unevenly distributed around the world. Poor people in poor countries suffer first and worst from extreme weather conditions linked to climate change. Today, 96% of all deaths from natural disasters occur in developing countries. By 2025, over half of all people living in developing countries will be 'highly vulnerable' to floods and storms. Ironically, these are also the people likely to be most affected by the results of conventional foreign debt.

The ecological debt – where did it come from?

Ecological debt is a logical consequence of applying long-established norms on the equality of people in law, and scientific knowledge emerging over time about the natural limits of the world around us.

A case also emerges from developing country claims that rich countries have systematically expropriated their natural resources for profit, either without paying at all, as in the case of bio-piracy of genetic plant, animal and human resources, or by paying too little. Then there is the case of chronic long-term depression in primary commodity prices in international markets, dominated by mostly Northern multinational companies. Capping all of these, though, is fossil fuel use and climate change.

Debates on politics, history, the environment and society prepared the ground.¹

In the 19th century observers of the British Empire were aware that, "all parts of the world are ransacked for the Englishman's table."² The 1960s saw a second Malthusian wave of anxiety about unsupportable population levels. Georg Borgstrom shone a light on the 'ghost acres' that countries like Britain depended on in other lands to feed their people. Britain required an even larger plot of land overseas to meet domestic demand than it had under cultivation at home.

In the 1970s Ivan Illich writing in *Energy and Equity* broadened the debate from saying action is needed simply to avoid environmental collapse. He said 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', but the conversation didn't go very far.

At the start of the 1990s 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 resources. The answers these new analytical tools produced were often obvious. Rich people, and big cities took up a lot of space – the capacity of 'distant elsewhere's'.

Still reeling from at least a decade-long debt crisis, born of international economic chaos, a handful of South American academics pointed to the exploitation of their countries' natural resources and started speaking about ecological debt. Such debts are very broadly defined including pollution, theft of resources and disproportionate use of the environment. Ecuador is now home to a campaign to reclaim the debt.³

Some descendants of the South American Indians colonised by European powers five hundred years ago, also now like to see the tonnes of gold and silver extracted from their hills and rivers and taken back to Europe as a loan. They point out that five centuries of compound interest have turned that loan into a very fat debt.

A growing awareness that there are global commons providing 'public goods', such as the absorptive capacity of the atmosphere, has woken politicians to an important contradiction. There are things that we all have an innately equal claim to, yet which are currently very unequally used.

But it is the increasingly sophisticated measurement of environmental tolerance that has given birth to a serious and very real ecological debt. 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, CO₂, is fundamental because it is a good measure of economic activity. The two are hardwired – broadly speaking more economic activity means more CO₂, means more climate disruption. From this elegantly simple equation enormous consequences flow.

If a global commons like the atmosphere, to which we all have an equal claim, is being overused and corrupted by one group of people they accrue an ecological debt to the wider community who depend on the commons.

There have been attempts to put money values to ecological debt.⁴ But with global warming, the real debt is the concentration of greenhouse gases in the atmosphere. While this does imply necessary compensation to developing countries, it importantly also demands a plan of action to eradicate the debt.

Industrialised countries are now responsible for a larger and more damaging ecological debt than any conventional foreign debt ever incurred by a developing country. It is a debt for which no accounting system yet exists to force repayment. Reckless human use of fossil fuels has created the spectre of climate change.

Research presented by the Intergovernmental Panel on Climate Change in early 2001 suggests the atmosphere may warm by as much as 6°C 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." In May 2001 a joint statement from 17 national academies of science confirmed that human-driven global warming was evident, and would increase 'intense' weather events and drought.

As a problem it is also clear where responsibility primarily lies. A typical US citizen, for example, uses fossil fuels at a rate 20 times higher than the average Indian citizen, 300 times that of someone from Mozambique, and many times the threshold for sustainable consumption per person. Though less extreme than the US, similar disparities exist for all EU and industrialised countries. As every day passes without a radical shift in consumption, the rich country carbon debt to the global community grows larger.

So, as the European Commission and the Member States prepare for the tenth anniversary of Rio and contemplate how to repay their debt to the world's poor, what should they consider?

Why efficiency won't work

The only get-out clause for a business-as-usual approach would be if technological improvements in efficiency and conservation gains could win the necessary cuts in CO₂ emissions.

The case is put that 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 critical. Relying on price alone, also disproportionately hurts people in poverty.

Because of this gap and the way that 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.⁵ 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 and come to pessimistic conclusions.

He measures that the global economy doubles roughly every 17 years.⁶ The correlation between the size of the global economy and CO₂ emissions is, he says, "astoundingly high ... practically total correlation".

To make the planet fit for human life, CO₂ in the atmosphere was converted by natural processes into fossil fuel reserves over the course of 180 million years. Back then 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 economics and policy makers assume that efficiency can grow indefinitely. This foundation allows them to believe that CO₂ emissions can be cut without either renouncing fossil fuels, or limiting conventional economic growth.

However, even under the most impossibly optimistic scenario, bringing us unimaginably close to the walls 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 and the 'long now', in the very best case, maximum efficiency gains would delay reaching a particular higher concentration of greenhouse gases by just 24 years. A more realistic outcome of global best efforts, taking account of the difficulty of collective political action, would be only a 'negligible delay'.

Trusting to efficiency will not allow "any significant or appreciable control of the coming climate crisis". From a strictly technical perspective a conclusion is drawn that,

"either we switch to non-fossil fuel sources of energy [which because of an implementation time-lag will take several decades to come up to demand]⁷ or we limit the world industrial product, or both in some proportion".

The tragedy of development⁸

Climate change places absolute limits on a global economy backed by fossil fuels. In so doing it demands a complete rethink of orthodox assumptions on development. But understanding the destructive and self-defeating urges at the heart of orthodox development requires deeper analysis.

Typically, whatever is considered modern is considered necessary and unstoppable. US academic Marshall Berman saw in Goethe's famous tragedy *Faustus* a parable for development and the growth economy. *Faust's* character has many incarnations, 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'".

He dramatises the central contradiction of the global economy. *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."

Berman explains, "Goethe's point is that the 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.

But the aim of growth, wrapped in self-important modernity, 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."

Sustainability adjustment programmes

The logic of what is needed should not be difficult to grasp. In the face of conventional foreign debts the poorest countries were told, and expected, to radically restructure their economies. Conventional structural adjustment – the inescapable reality for poor indebted countries, however dressed up demands austerity measures. A reverse form of economic adjustment is now needed for the wealthy carbon debtors to set them on a path to sustainability – we can call them sustainability adjustment programmes.

Something positive may still emerge from poor countries' negative experience of market-led economic adjustment programmes over the last few decades. The principles may now be used more appropriately to design sustainable economies for the original architects of adjustment – the rich countries.

Conventional adjustment is a two-stage process. Stabilisation comes first, followed by a fundamental re-gearing of the economy. How might this apply to 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. This means two things. The economy free rides on the way that families care for workers and the way that natural resources are used up, like spending a one-off family inheritance. The second effect is a hugely over-valued economy – like a company's accounts that only show income, not expenditure. Using quite well established methodologies economists like Herman Daly demonstrated that the growth daily referred to by politicians and economists is actually 'uneconomic growth'.

Full-cost accounting would create the proper feed-back of information to the economy, helping to restore a semblance of reality to national economic accounts, and allow for more prudential economic planning. These changes are about making maps to find a balance of environmental payments – something that must be found in the trade between human economic activity and the natural environment.

Adjustment will be a much longer, negotiated process. Adjustment implies two key approaches. Firstly a broad range of reforms to develop greater economic democracy. Secondly, that all economic planning is set within known environmental limits, primarily in this case, climatic tolerance.

Before a balance can be achieved the ecological deficit, manifest in the damaging accumulation of CO₂ in the atmosphere, must be eliminated. The adjustment process will need to be set within parameters and an orderly framework. Contraction and convergence is just such a framework.

What is 'contraction and convergence'?

A Co-Chair of the Intergovernmental Panel on Climate Change, Sir John Houghton, told the British Association for the Advancement of Science, that global greenhouse emissions need to be reduced by at least 60% in less than a hundred years. Michael Zammit Cutajar, Executive Secretary of the UNFCCC, recently called for an atmospheric concentration target for greenhouse gases to be, and he called on scientists to take the step of defining what is 'dangerous'. Klaus Töpfer, executive director of the UN Environment Programme, previously went as far as to call for a 90% cut in consumption in rich countries to meet the challenge, adding that, "a series of looming crises and ultimate catastrophe can only be averted by a massive increase in political will".

When governments agree to be bound by a target, the diminishing amount of carbon dioxide and other greenhouse gases that the world could release, while staying within the target, can be calculated for each year in the coming century. This describes the necessary contraction of emissions.

Convergence describes how each year's tranche of this global emissions budget gets shared out among the nations of the world. It is based on the principle of equal per capita entitlements and happens in such a way to ensure that every country converges on the same allocation per member of population by a given year to be negotiated, by say, 2030, the date suggested by Houghton.

Countries unable to manage within their allocations would, within 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. The countries of the North would benefit from the export markets this restructuring would create. And the whole world would benefit by slowing the rate at which damage was being done. 'Contraction and convergence' provides an effective, equitable and efficient framework within which governments can work to avert climate change. Because of this, sectors at the cutting edge of global warming like the insurance industry have endorsed the orderly framework and even some progressive fossil fuel producers have demonstrated a positive interest.

Many would claim that the necessary cuts in greenhouse gas emissions are impossible and the stuff of fantasy. On one hand history suggests otherwise. And on the other, if the cuts are necessary to preserve a livable atmosphere they should be viewed as non-negotiable.

A new environmental war economy

Under very specific circumstances and using a combination of special government powers and a massive public education programme, during World War II Britain achieved dramatic cuts in resource consumption in a very short space of time. Between 1938–44 there was a 95% drop in the use of motor vehicles in the UK. This exceeds even the deepest cuts in consumption that the most pessimistic climate watchers say is needed in wealthy countries today. From 1938–43, the use of public transport increased by 13%.

Across all goods and services consumption fell 16%, but with much higher drops at the household level. In just six years from 1938 British homes cut their coal use by 11 million tonnes, a reduction of 25%. It is possible to argue that these two situations – responding to military conflict and dealing with a hostile environment – are not sufficiently similar, but the populations of Bangladesh, Mozambique and Nicaragua might disagree. To many in the EU it will seem a sacrifice too far. After all, most decision-makers live far removed from the murderous reality of climate change.

But the situation in the global environmental war economy is not so different from the dilemma that faced individuals in Britain's war economy. As it was expressed 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."

The world's very poor often live with austerity measures imposed under the aegis of dubious conventional external debts. They lose their loves, lives and limbs, and their farms and families when climate change strikes. These are things to keep in mind as EU governments worry about how forcefully they persuade people to switch from their cars to travel by train instead.

To get even close to the necessary cuts in fossil fuel consumption requires governments first to make and then win the argument for action in public. But then change needs to happen within an orderly and logical framework. Any solution will need to be based on real cuts in overall carbon emissions, otherwise known as contraction. We will also have to move towards equally sharing the atmosphere, known as convergence. The contraction and convergence approach has been endorsed by developing countries and

everyone from the insurance industry to the UK's Royal Commission on Environmental Pollution.

What is to be done?

The fact of ecological debt suggests two things:

- **First, a fundamental realignment of who owes whom in the international economy. Third world debt pales into insignificance in the face of the ecological debts of industrialised countries. New measures can be developed to account for the ecological debt**
- **Second, a challenge to EU States and others to balance their domestic environmental budgets. By the time of the Johannesburg Summit, each should have clear plans on how 60–90% domestic CO₂ cuts can be achieved over 30, 50 and 70 year periods.**

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% of GNP, becomes irrelevant against the scale of appropriate resources that poor countries will need to mitigate the impact of climate change.

Bangladesh's environment minister suggests that climate change may create 20 million new refugees. Unless there is new action commensurate with the scale of the global warming problem, we may be experiencing the end of development.

At almost every turn the least developed and most vulnerable countries are being failed by the global economy. Prospects look bleak. Terms of trade for the Least Developed Countries keep getting worse. Their share of aid nearly halved during the 1990s. The trickle of foreign direct investment they receive remains "highly focused on natural resource exploitation" according to the UN Conference on

Trade and Development. The options left open to find the resources necessary to adapt to, and mitigate, the effects of global warming seem few. Understandably, and as an action of last resort, international legal action is beginning to be seriously discussed.

The value to rich countries of their unsustainable use of fossil fuels is vastly greater than any of the estimates put on funding sustainable development in poor countries. Taking climate change into account, each Member State should arrive at the Johannesburg Summit knowing what their new, additional and relevant contributions to developing countries should be, to make the international development targets for 2015 a reality.

It may well take the equivalent of an environmental war economy to balance the books. Frustration among developing countries could even force them, through lack of alternatives, to seek damages for climate change in the international courts. But one thing is clear, unless the carbon debt is tackled, we will all be left environmentally bankrupt. ●

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1. For further references see Nick Robins (1993) *Citizen's action to lighten Britain's Footprints*, IIED.
 2. Robert Southey, *Letters from England*.
 3. Accion Ecologica is based in Quito, Ecuador.
 4. For example, Simms, Meyer, Robins *Who owes who? Climate change debt equity and survival*, Christian Aid, 1999; and Martinez-Alier *Ecological debt vs. external debt – a Latin American perspective* Universitat Autònoma de Barcelona.
 5. *Op cit*, David Fleming.
 6. Measured as World Industrial Product, a generalised measure of GDP, cleaned of inflation and inclusive of real goods and materials rather than merely monetary indicators.
 7. Author's insertion.
 8. Marshall Berman, *All that is solid melts into air – The experience of Modernity*, 1983, Verso, London and New York.