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Contraction and Convergence: A Framework for Accountability on Climate Change and Energy Use



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From understanding the problem to addressing the problem

Currently, the global community continues to generate dangerous climate change faster than it organises to avoid it. The international diplomatic challenge is to reverse this. Key to this is a fundamental rebuilding of our framework for accountable energy use.

The damaging side-effects of fossil fuel use are well known. Indeed, perhaps they are too well known when so much time has passed since the First Assessment Report (FAR) of the Intergovernmental Panel on Climate Change (IPCC), 'Climate Change; the Scientific Assessment', in 1990. Today a major problem for governments, policy-makers and campaigners is how to create the impetus that leads to action on this agenda without tipping individuals, businesses and governments into a sense of complete fatalism about the scale of the problem and our ability to address it.

Since 1990 we have known, for instance, that greenhouse gas concentrations in the atmosphere had risen 25% above the pre-industrial level due to an accumulation of emissions from human activities such as fossil fuel burning and land-use change. The global mean temperature

had dangerously increased by more than one-third of a degree over the previous 100 years. To stabilise the rising concentration of atmospheric carbon dioxide (CO₂), the main greenhouse gas from human sources, at the then current value of 353 parts per million by volume (ppmv), an immediate cut of CO₂ emissions between 60% and 80% would be required. Disproportionately higher cuts would be needed if action were delayed to achieve a stable level of concentration in the atmosphere.

Given the global scale of the challenge, our answer to habitual energy consumption practices needs to be full-term and constitutional, rather than short-term and haphazard. Our answer must address the inertia surrounding arguments around rich countries' 'historic responsibilities', recognising rising concentrations as a development opportunity cost to newly industrialising countries. It must also enable an international pre-distribution of these tradable (and therefore valuable) future entitlements to emit greenhouse gases (GHGs).

The purpose of 'contraction and convergence' (C&C) is to make this possible (see Box). It provides an accountable framework for safe emissions to be calculated and shared by negotiation so that policies and

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Defining accountabilities: ‘Contraction and Convergence’ (C&C)

C&C is the science-based, global climate-policy framework, proposed to the United Nations as a way of redefining our accountabilities in using fossil fuels. On the basis of the UN Framework Convention on Climate Change (UNFCCC), it describes these accountabilities as:

- A full-term contraction budget for global emissions consistent with stabilising atmospheric concentrations of greenhouse gases (GHGs) at a pre-agreed concentration maximum deemed to be safe, following IPCC WG1 carbon cycle modelling.
- The international sharing of this budget as ‘entitlements’. This results from a negotiable rate of linear convergence to equal shares per person globally by an agreed date within the timeline of the full-term contraction/concentration agreement. GCI suggests (a) between the years 2020 and 2050, or around a third of the way into a 100-year budget, for example, for convergence to complete and (b) that a population base-year in the C&C schedule be considered.
- Negotiations for this at the UNFCCC occurring principally between regions of the world, leaving negotiations between countries primarily within their respective regions, such as the European Union, the Africa Union, the US, etc. The inter-regional, inter-national and intra-national tradability of these entitlements in an appropriate currency such as International Energy Backed Currency Units is encouraged.

As scientific understanding of the relationship between an emissions-free economy and concentrations develops, so rates of C&C can evolve under periodic revision. So far, GHG emissions have been closely correlated with economic performance. To date, this growth of economies and emissions has been mostly in the industrialised countries, creating recently a global pattern of increasingly uneconomic expansion and divergence, environmental imbalance and international insecurity.

measures can be internationally organised at rates that avoid dangerous global climate change. Eighteen years ago the Global

Commons Institute started a campaign for a solution to climate change under the banner of ‘equity and survival’. With this ethos, GCI sought to do two

things: one was to get information on systems trends organised into an accurate explanation of global climate change's causes; the other was to design and promote a framework solution for global accountability. We described the solution as 'C&C'.

The approach of C&C seeks to do this in a fundamentally (and necessarily) ambitious way. The approach has gathered significant political support from groups including the UK Royal Commission on Environmental Pollution, the German Advisory Council on Global Change and The Africa Group of Nations.¹ The European Parliament has passed a

resolution in favour of C&C in 1998 and a Bill recommending the approach is currently before the UK Parliament.² As global negotiations have wound on, however, the effects of continued untrammelled fossil fuel use have worsened, emphasising further the need for a global, structured response to fuel use and climate change.

A worsening situation

Until recently, the ratio of rising emissions and concentrations (or sources minus sinks) has been assumed to be constant. The ratio of what has accumulated in the

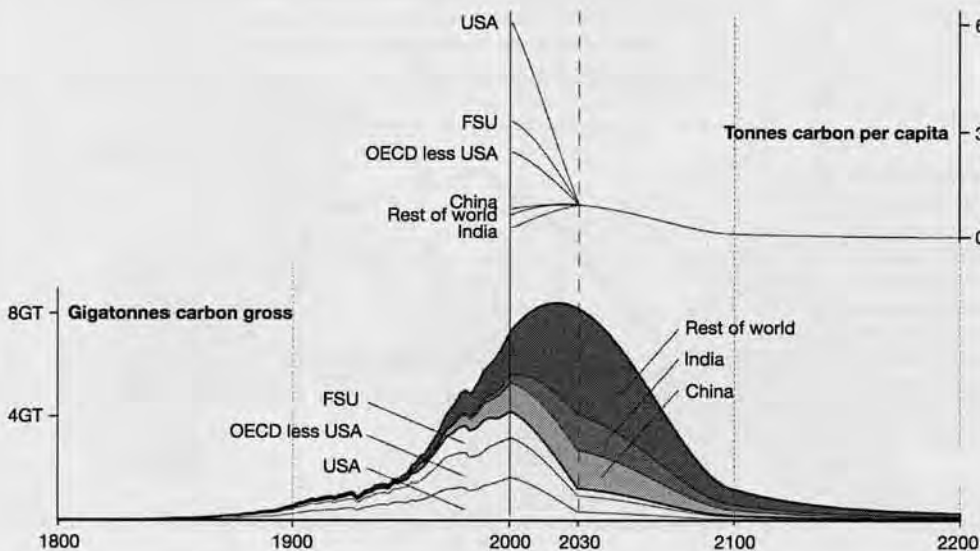


Figure 1. Global atmospheric concentrations of CO₂ and projections for contraction

1 See www.rcep.org.uk/pdf/chp4.pdf and www.wbgu.de/wbgu_sn2003_engl.pdf.

2 See www.gci.org.uk and www.publications.parliament.uk/pa/cm200506/embills/092/06092.i-i.html.

“The biosphere ‘sinks’ appear to be no longer expanding in proportion to the growth rate of emissions. The fraction of each year’s emissions retained in the atmosphere is increasing”

atmosphere has remained constant at the net 50% of the flow of emissions for the last 200 years — as shown by the Carbon Dioxide Information and Analysis Centre (CDIAC)’s data record. Emissions of CO₂ from fossil fuel burning rose from about ten million tonnes of carbon a year in 1800 to round six and a half billion tonnes at the present, rising at an average rate of between 2% and 3% per annum (see Figure 1). Concentrations of CO₂ in the global atmosphere rose during this period 100 ppmv from 280 ppmv in 1800 to 380 ppmv at the present time.

So far, on average, a constant 50% of each year’s emissions has been retained in the atmosphere and half has been returned to the natural sinks. But this so-called ‘constant airborne fraction’ (CAF) now appears to be increasing. The biosphere ‘sinks’ appear to be no longer expanding in proportion to the growth rate of emissions. The fraction of each year’s emissions retained in the atmosphere is increasing (Figure 2).

Data from Mauna Loa Observatory in Hawaii indicates that ‘positive feedback’ is occurring within the biosphere as a whole. If this trend

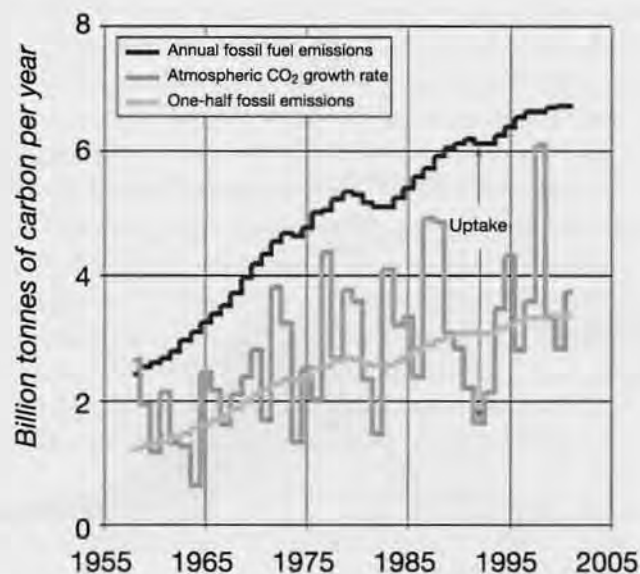


Figure 2. Atmospheric Growth Rate of CO₂

persists, the odds for achieving the objective of the UNFCCC worsen. It means that the contraction and convergence of emissions required for stable concentrations must be even faster than was estimated in the IPCC 2nd and 3rd Reports. The delaying consequences of vague and aspirational climate politics therefore come at a price.

Figure 3 visualises projected CO₂ emissions and their possible effects on future atmospheric concentrations. It projects three different rates for

atmospheric retention of CO₂ over 200 years ('D', 'E', 'F') based on more or less optimistic models.

All the projections show the dangers we face from these aggravated rates of atmospheric accumulation of emissions. The case for urgent contraction recognises this and also recognises that the cuts in CO₂ globally we have been contemplating so far may prove ineffectual unless they are systematically structured and pursued immediately as a top priority,

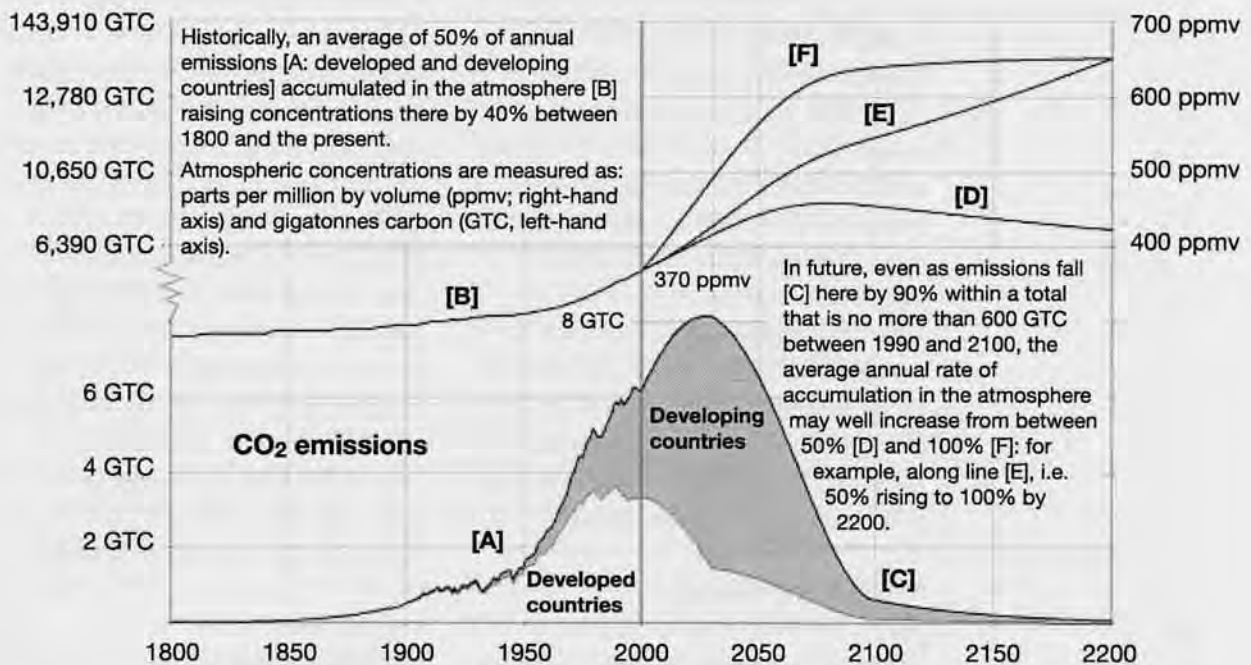


Figure 3. Rates of CO₂ accumulating in the global atmosphere

“[The IPCC’s] income-dependent method demonstrated that 15 dead poor people equalled one dead rich person, and, as mitigation was expensive, it was, on this theoretical model, cheaper to buy off the death damages of climate change than to prevent it”

in the light of this revised understanding.

The rich, the poor and accountable energy use

A shift to more accountable energy use will principally depend on four things: our values, our practical models; our appreciation of the problem; and our political leadership.

Values

It firstly depends on our underlying values. In the IPCC’s Second Assessment Report of 1995, economists argued that non-market services and actors had little value. Their income-dependent method demonstrated that 15 dead poor people equalled one dead rich person, and, as mitigation was expensive, it was, on this theoretical model, cheaper to buy off the death damages of climate change than to prevent it. Unsurprisingly, a diplomatic furore resulted, damaging the negotiations. To us such cost benefit approaches seem the economics of genocide — a model we cannot accept and one that is now theoretically discredited.³

Concrete alternatives

Secondly, it depends on having a concrete alternative model to propose, which we believe C&C provides. Some, like James Lovelock, already

take the view that it is too late to deal with this problem. We should assume, however, that there still is time and that the moment to be accountable and come to order is upon us now. This hangs simply on how readily we subordinate growth in order to avoid death and damages to our habitat and also on how quickly we become globally accountable to effect this through adopting the contraction and convergence of emissions as the prerequisite of survival beyond the stopgap Kyoto Protocol.

Appreciating the problem

Thirdly, it depends on appreciating (rather than technically understanding) the problem. Take a recent case. On 24 March this year, the BBC, discussing the 12 million sub-Saharan Africans projected to die this year because of climate change-induced drought and famine, described global climate change as ‘the rich killing the poor’. To my knowledge, in 20 years of campaigning, this was the first explicit remark in mainstream media about how our priorities in economic growth make the poor increasingly not just vulnerable but also expendable.

The BBC’s story was developed in the UK’s *The Independent* the following day. The story’s source was a report by the UK’s Department for

³ www.gci.org.uk/articles/Nairobi3b.pdf.

International Development (DfID) on the developmental effects of climate change. Days later *The Independent* contained the frankest and most damning mainstream UK editorial piece ever published on climate change, 'unfettered growth leads to climate change genocide'. Yet initially both the BBC and *The Independent* pulled their punches, failing to report on DfID's solution for avoiding this endgame through a framework that included:

1. A target to stabilise GHG concentrations at a safe (economically affordable) level by a specific date; and
2. Global participation through national targets, consistent with the global limit.

One has to ask, why did the BBC not report this? Here at last was DfID, the UK Government Ministry most specifically charged with issues of international relations and development, clearly articulating a strategy for addressing global climate change. By what standard do the media expect to be judged for avoiding all mention of this? By stressing only the economics of the rich killing the poor, the media risk fostering guilt and despair. It is only with the constructive support of the media outlets that educate us that we

can fully appreciate the problem of climate change and act accordingly.

Political leadership

Fourthly and finally, as the DfID story makes clear, accountable energy use will also depend on political leadership.

To stay with this UK example, the DfID report was actually a memo sent to the UK Government's 'Review of the Economics of Climate Change' currently being conducted by Sir Nicholas Stern, at HM Treasury. Two days before the DfID report was leaked, Gordon Brown the UK Chancellor made his annual budget speech. Speaking of greenhouse gas emissions and dangerous climate change, he noted that, 'with 98% of emissions occurring outside Britain, climate change is a global issue which demands global solutions ... so our first ambition must be a long-term international framework'. In effect this logically ought to be a call for 'contraction and convergence'. Likewise C&C ought to be 'the rational and science based unity we so urgently need' as called for by the UK Prime Minister in November 2005. Mr Blair, his chief scientist Sir David King and the former Chairman of the Intergovernmental Panel on Climate Change (IPCC), Sir John Houghton, have all described climate change as

more dangerous than the threat of terrorism. But for the moment Mr Brown's unstructured generalities prevail.

Conclusion

So far, climate change has been seen as too expensive to avoid, and the result is that we culpably default back to the economics of genocide. We know what is happening. All of us are accountable for the unsustainable rate of damages climate change is causing and the worsening global injustice of trading away the lives of the poor and vulnerable people in less affluent parts of the world as the rich pursue unsustainable growth models.

When this true cost-benefit analysis of human and ecological damage versus such growth is understood globally, it is clear that climate change is already becoming too expensive for us all to cope with. Millions of people are scripted to die this year alone through African drought and famine induced by climate change. Last year's damages to New Orleans from Hurricane Katrina were put at US\$100 billion: a single event. In the UK, abnormal flooding in York, Boscawen and Carlisle, heatwaves and water shortages already claim lives and have

insurers looking nervously at an increasingly desperate future. According to Swiss Re, the rate of damages is exponential and proceeding at twice the rate of growth globally. If true for another 40 years, damages will overtake growth within a generation.

It is a global framework for accountability to each other and survival for our children that we need. The UK government should assume a role in winning global acceptance of C&C this November at the 12th Conference of the Parties (COP-12) to the UNFCCC in Nairobi. C&C has been the Africa Group's position since 1997 when they with support from the Indians and the Chinese, tabled it at COP-3 in Kyoto. The Protocol agreed in '97 runs out in 2012, and is now understood as completely inadequate. We have a tangible model. We know what are values are if we think about them. What we need is more intelligent, popular media reports and better political leadership in order to apply these values into new accountabilities. Then we will be able to redress and shift our energy use — seeing it neither as an inevitable apocalypse nor as the 'uneconomic' cul de sac to that outcome.