

EMINUS

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carbon and share-price performance

DON'T ANNOY THE RHINO

Contraction and Convergence

DESIGN FOR CHANGE

Climate change and the built environment



DON'T ANNOY THE RHINO!

It is only a matter of time before the human economy is derailed by angry rates of climate change. But what can we do to avoid this calamitous situation? According to AUBREY MEYER the answer is Contraction and Convergence...

There is a tale about an angry Rhino and the Salisbury-Bulawayo Express.

In what was old Rhodesia, a steam train used to go daily between those towns along a single track. But there was trouble. The train-track ran through rhino-territory and, as time went by, the cranky old lead-rhino took umbrage about the train and its route and planned a counter-strike. One day, as the train chugged south at 70 miles an hour, the rhino mounted the track and charged north. The resulting train-smash derailed the train and killed the rhino.

A comparable kamikaze situation is developing with global climate change. With greenhouse-gas emissions still accelerating upwards, we are now going down the tracks towards the oncoming angry rhino of dangerous climate change at a rate that threatens chaotic impacts and challenges species survival.

In more technical language, despite the heroic arrangements in favour of the 'Kyoto Protocol',

we continue globally to cause climate change much faster than our response to avoid it. So the key question is, what does it really take to avoid this chaos?

The answer is 'Contraction and Convergence' (C&C) – with appropriate haste, fossil-fuel emissions must contract globally while the international shares in this converge.

ANGRY RATES OF CLIMATE CHANGE

As demand in the formal economy grows at three per cent a year, burning fossil-fuels for the energy requirement has grown at an almost equivalent rate. The greenhouse-gas emissions from this fuel-burning are accumulating in the global atmosphere and it is this raised concentration of heat-trapping gas that explains the rise in temperature and danger that is called global warming and climate change.

In turn, it is this increase in temperature that is behind the global growth of droughts, floods, crop-

failures, hurricanes, glacial and ice-cap melt and so on. Estimated accounts for these climate-related damages have been kept by the Re-Insurance industry for the last 40 years. The records show that this rate of growth, albeit from a lower based figure, is on average going at more than twice the rate of the growth of the economy. Looking forward on this track, it is only a matter of time before they impact and the human economy is derailed by angry rates of climate change.

FULL-TERM FRAMEWORK REQUIRED

To prevent this, the United Nations Framework Convention on Climate Change (UNFCCC) was created, signed and ratified between 1990 and 1995. Its objective was established as stabilising the rising concentration of greenhouse gas in the global atmosphere at a value that is safe. Its principles are precaution and equity.

Whatever else is true, in order to merely slow ►

and then stabilise the rising atmospheric concentrations of greenhouse gas, the underlying net-emissions must contract globally to nearly zero within roughly 50 years if we are to avoid dangerous and potentially runaway rates of global climate change. There are arguments about these rates, but the basic message is inescapable – we are causing the problem faster than we are acting to avoid it. While everybody knows that the UNFCCC was the first step to deal with this, we also know that the 'evolutionary' patchwork of the Kyoto Protocol is not an adequate second step. A full-term framework is needed.

To measure this, an adequate reading of the problem across global time/space is necessary, otherwise adequate action cannot be organised or even its need understood.

COMMUNICATING THE TREND-DYNAMIC

The first challenge is communicating the trend-dynamic of the UNFCCC objective – all the time we are achieving this contraction, we are merely slowing the rise of concentrations, temperature and damages. The relationship between emissions and concentrations compares with an open tap and the bath into which its water is flowing. The problem is that the bath continues to fill while we are turning the tap off and if we are too slow, there is over-spill. To deal with this, a numerate full-term international greenhouse gas 'concentrations/contraction' arrangement is required by definition.

COMMUNICATING THE PRINCIPLE OF EQUITY

The second challenge is communicating the principle of equity – we need to address this survival challenge with a clear understanding of the pervasive and worsening asymmetry in the global economy. Over many decades, the persistent trend has been that two thirds of people globally (*mostly, but not only in the developing countries*) have less than six per cent of global purchasing power with greenhouse-gas emissions to match, while the other third (*mostly in developed countries*) have 94 per cent of global purchasing power and with emissions to match. Those who argue to 'make poverty history' as a stand-alone argument are not only faced by those who don't engage with that, they also face this asymmetry with the reality that climate change is making this 'poverty' into emiseration and fatality, particularly in Africa. A pre-defined global equity-based 'contraction/convergence' future emission-permit sharing-arrangement is required by definition to deal with this. The issues of equity and survival cannot be separated. *Inter alia*, C&C is the position of the Africa Group of Nations.

COMMUNICATING THE PRINCIPLE OF PRECAUTION

The third challenge is communicating the principle of precaution – all our children are being born into what is becoming a worsening death-trap. As intelligent citizens and parents we know we cannot successfully separate issues of equity and survival from precaution. Hope is good – but not enough. Nor can we, in conscience, or assumed powerlessness, take the position that the present and future climate-casualties are wishfully just the lesser and unavoidable collateral costs of the 'success' story of economic growth. Trends show they are not. A precaution-based 'concentrations/contraction/convergence' agreement is imperative as damage-prevention takes precedence over future growth. If correctly understood, this underwrites whatever growth is still possible.

THE FUTURE IS LIFE

Further, whatever the bitter arguments between science and religion, about evolutionism versus creationism and intelligent-design, it is the future that speaks to us now. Future life on earth can only be protected against dangerous human-induced climate change with a deliberate and intelligently human-designed 'Contraction and Convergence' agreement. C&C, and the case for it, as argued by GCI since 1990, is summarised on the previous page and below. C&C is now the most widely known and supported basis for dealing with climate change in the international debate.

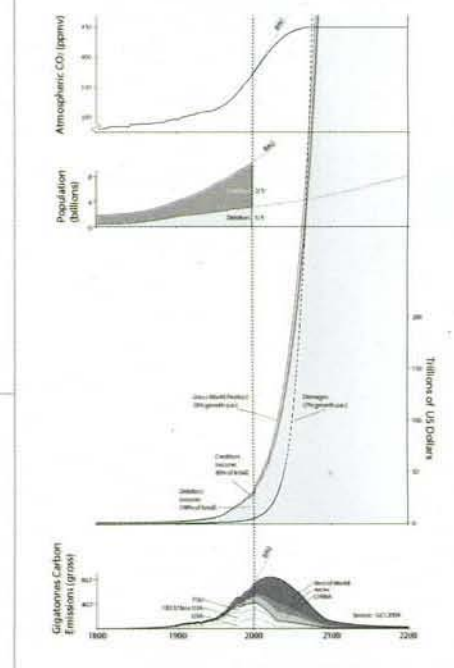
The future is life, if there is one. If there is a future, it will result directly from organising in this way based on this analysis. Humanity will not survive the head-on smash with the damages of global climate change that present trends dictate. The moral? *"Don't annoy the Rhino!"*

RESOLVING THE IMBALANCE OF CLIMATE CHANGE

The charts in image four are stacked one above the other on the same horizontal time axis (1800 - 2200). This helps to compare some of what is known about existing rates of system change with an underlying assumption in favour of a C&C arrangement being put in place. A new feature shown is the rate of economic damages from increasingly 'unnatural disasters' (measured as 'uninsured economic losses' by Munich Re) now rising at over six per cent per annum, twice the rate of global growth. Another is the devastating and worsening economic asymmetry of 'Expansion and Divergence' (E&D). This shows a persistent pattern of increasingly dysfunctional economic growth. One third of the population has 94 per cent of global purchasing power and causes 90 per cent of GHG pollution (called 'debtors'). The other two thirds, who live on less than 40 per cent of the average global per capita income, collectively have six per cent of global purchasing power and a 10 per cent share of GHG pollution (called 'creditors'). To escape poverty, it is creditors who embody the greatest impulse for future economic growth and claim on future GHG emissions. But this group also has the greatest vulnerability to

IMAGE 4

Double Jeopardy: Asymmetric Growth & Climate Damages



damages from climate changes.

Most institutions now acknowledge that atmospheric GHG stabilisation, "inevitably requires Contraction and Convergence". However, some of the response to C&C, sees it merely as 'an outcome' of continued economic growth with only tentative acknowledgement of the damages and little comprehension of E&D.

While C&C is not primarily about 're'-distribution, it is about a 'pre'-distribution of future tradable and valuable permits to emit GHGs. Its purpose is to resolve the devastating economic and ecological imbalance of climate change. GCI's recommendation to policy-makers at the United Nations is for the adoption of C&C globally for ecological and economic recovery as soon as possible.

PROFILE:

Name: Aubrey Meyer

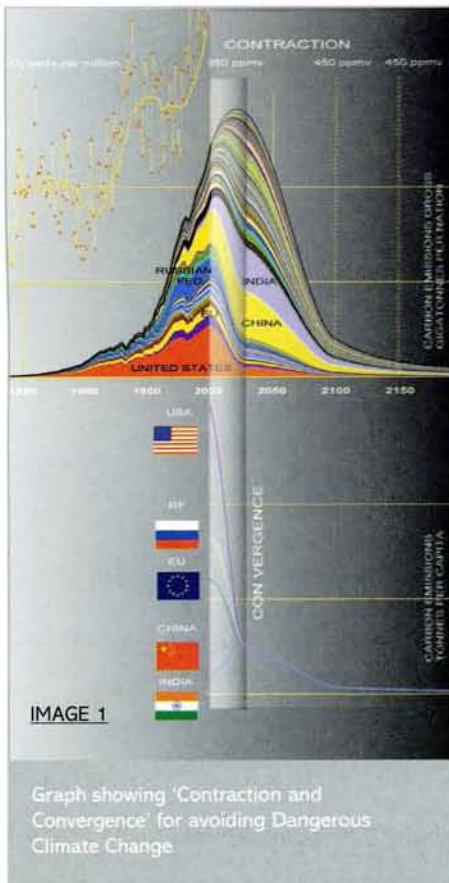
Age: 58

Aubrey Meyer co-founded the Global Commons Institute (GCI) in London in 1990. He spent the next decade campaigning at the United Nations negotiations on climate change to win acceptance of the management of global greenhouse-gas emissions through the framework of 'Contraction and Convergence'. In 1998, he won the Andrew Lees Memorial Award for this and, in 2000, the Schumacher Award. In 2005 the City of London made a lifetime's achievement award to him, saying that from the worlds of business, academia, politics and activism, he had made the greatest contribution to the understanding and combating of climate change, having led strategic debate or policy formation. The citation read, "in recognition of an outstanding personal contribution to combating climate change at an international level through his efforts to enhance the understanding and adoption of the principle of Contraction and Convergence."



FOOTNOTES

- [1] <http://www.gci.org.uk> [2] <http://www.gci.org.uk/model/dl.html> [3] [http://www.gci.org.uk/images/CC_Demo\(pc\).exe](http://www.gci.org.uk/images/CC_Demo(pc).exe) [4] http://www.gci.org.uk/images/C&C_Bubbles.pdf
[5] <http://www.leasta.org/events/debtcont/sleepwalking.pdf> [6] <http://www.rcep.org.uk/pdf/chp4.pdf>
[7] http://www.wbgu.de/wbgu_sn2003_engl.pdf [8] http://www.gci.org.uk/Archive/1989_2004
[9] <http://www.gci.org.uk/consolidation/Sasakawa.pdf> [10] <http://www.gci.org.uk/papers/zew.pdf> [appendix C, page 16] [11] http://www.gci.org.uk/temp/COP3_Transcript.pdf [12] <http://www.gci.org.uk/briefings/C&CByrdHagel.pdf>
[13] http://www.gci.org.uk/consolidation/UNFCCC_A_Brief_History_to1998.pdf [pp. 27 - 32]



RATES OF CONTRACTION AND CONVERGENCE

IMAGE 2

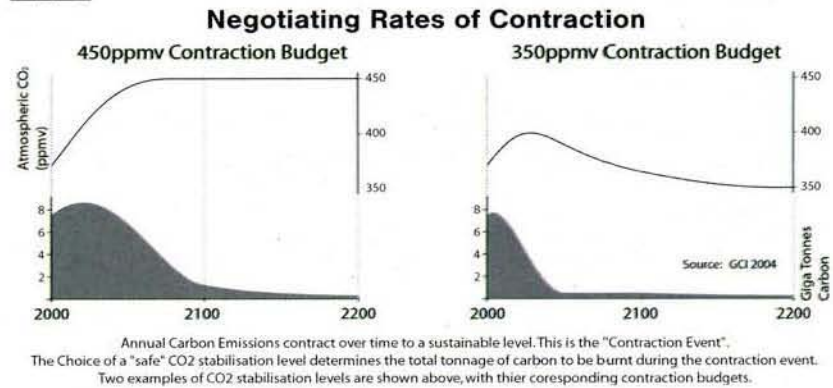
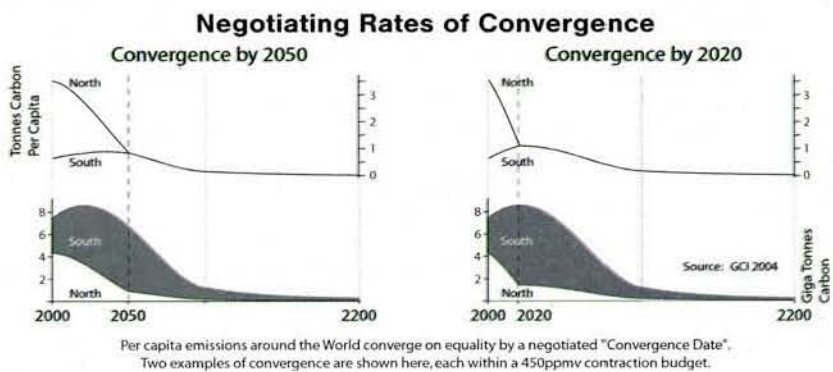


IMAGE 3



CONTRACTION AND CONVERGENCE

- 1) "Contraction and Convergence" (C&C) is the science-based, global climate-policy framework, proposed to the United Nations since 1990 by the Global Commons Institute (GCI) [1,2,3,4].
- 2) The objective of safe and stable greenhouse-gas concentrations in the atmosphere and the principles of precaution and equity, as already agreed in the 'United Nations Framework Convention of Climate Change' (UNFCCC), provide the formal calculating basis of the C&C framework that proposes:
 - A full-term contraction budget for global emissions consistent with stabilising atmospheric concentrations of greenhouse gases at a pre-agreed concentration maximum deemed to be safe, following IPCC WG1 carbon-cycle modelling. (see Image 2, above – GCI sees higher than 450 parts per million by volume [ppmv] CO₂ equivalent as 'not-safe');
 - The international sharing of this budget as 'entitlements' 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 (see Image 3, above); and [b] that a population base-year in the C&C schedule is agreed);
 - Negotiations for this at the UNFCCC should occur 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 (see Image 1, above);

- The inter-regional, inter-national and intra-national tradability of these entitlements in an appropriate currency such as International Energy Backed Currency Units (EBCUs) [5] should be encouraged;
 - Scientific understanding of the relationship between an emissions-free economy and concentrations develops, so rates of C&C can evolve under periodic revision.
- 3) Presently, the global community continues to generate dangerous climate change faster than it organises to avoid it. The international diplomatic challenge is to reverse this. The purpose of C&C is to make this possible. It enables scenarios for safe climate to be calculated and shared by negotiation so that policies and measures can be internationally organised at rates that avoid dangerous global climate change.
 - 4) GHG emissions have so far been closely correlated with economic performance (see Image 4, over page). 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 (E&D), environmental imbalance and international insecurity (see Image 4, over page).
 - 5) The C&C answer to this is full-term and constitutional, rather than short-term and stochastic. It addresses inertial argument about 'historic responsibilities' for rising

- concentrations, recognising this as a development opportunity cost to newly industrialising countries. C&C enables an international pre-distribution of these tradable and therefore valuable future entitlements to emit GHGs to result from a rate of convergence that is deliberately accelerated relative to the global rate of contraction agreed (see Image 3, above).
- 6) The UK's Royal Commission on Environmental Pollution [6] and the German Advisory Council on Global Change [7] both make their recommendations to governments in terms of formal C&C. Many individual and institutional statements supporting C&C are now on record [8, 9]. The Africa Group of Nations formally proposed it to the UNFCCC in 1997 [10]. It was agreed in principle at COP-3 Kyoto 1997 [11]. C&C conforms to the requirements of the Byrd Hagel Resolution of the US Senate of that year [12] and the European Parliament passed a resolution in favour of C&C in 1998 [13].
 - 7) This synthesis of C&C can redress the increasingly dangerous trend imbalances of global climate change. Built on global rights, resource conservation and sustainable systems, a stable C&C system is now needed to guide the economy to a safe and equitable future for all. It builds on the gains and promises of the UN Convention and establishes an approach that is compelling enough to galvanise urgent international support and action, with or without the Kyoto Protocol entering into force.