The banner was erected opposite and facing the US Embassy in Grosvenor Square LONDON

"Contraction

& Convergence is the logical conclusion on equitable approach to ring Climate Change.

> Lewis Cleverdon GCI created and erected this C&C banner in time for the Climate-Justice march in LONDON UK

"Contraction Record Particles to respect the Earth's capacity & Conve: gence for a most emission-right's to per-capita rarky "Is the logica" onclusion & en equitabl pproach to Robing film 2 Change cin Manage Conversion of the second second Proach to Robing film 2 Change cin Manage Conversion of the second second Proach to Proac

Around 8,000 marchers arrived at the square from 2.30 03-12-2005. They heard speak meers George Monbiot, Caroline Lucas, Ruth Jarman Norman Baker refer to the urgent need for C&C.

Contraction

Convergence

e equitable approach to Ding Climate Change.



5

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C&(

ILLE

Tim Helweg Larsen GCI created and carried this C&C banner in time for the Climate-Justice march in MONTREA L Canada.

The GCI team at COP-11 Kate Mcconnell Turnbull, Tim Helweg-Larsen, Tatsuro Shigetomi, Gillian Helweg-Larsen

au prolon

ction & Concentrations

Contraction & Convergence





For the now beautiful young woman who, only yesterday, was this beautiful little girl.

Dearest,

"Remember, if when tomorrow comes, your heart is in the right place, you are never far from home . . . . "

Your loving Dadda

all nations' emission "in the log find equita

All nations' emission-rights to per-capita part the logical conclusion equitable approach t ina Climate Change

OXFORD UNIVERSITY

CONTRACTION

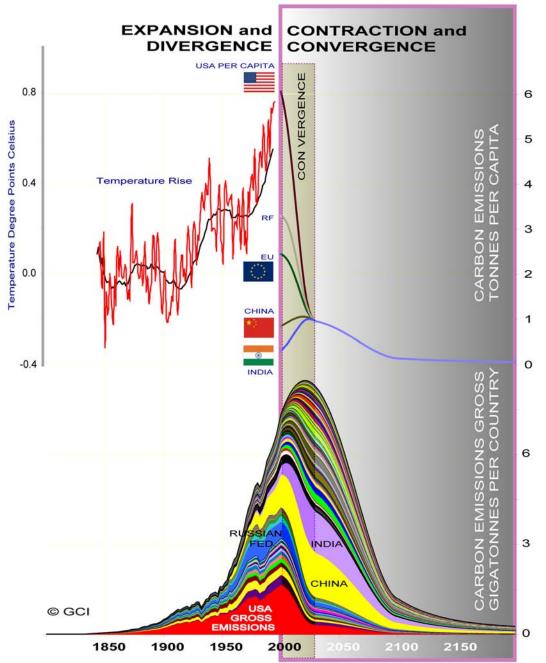
**TRAFALGAR SQUARE 4th Novmber 2006** 

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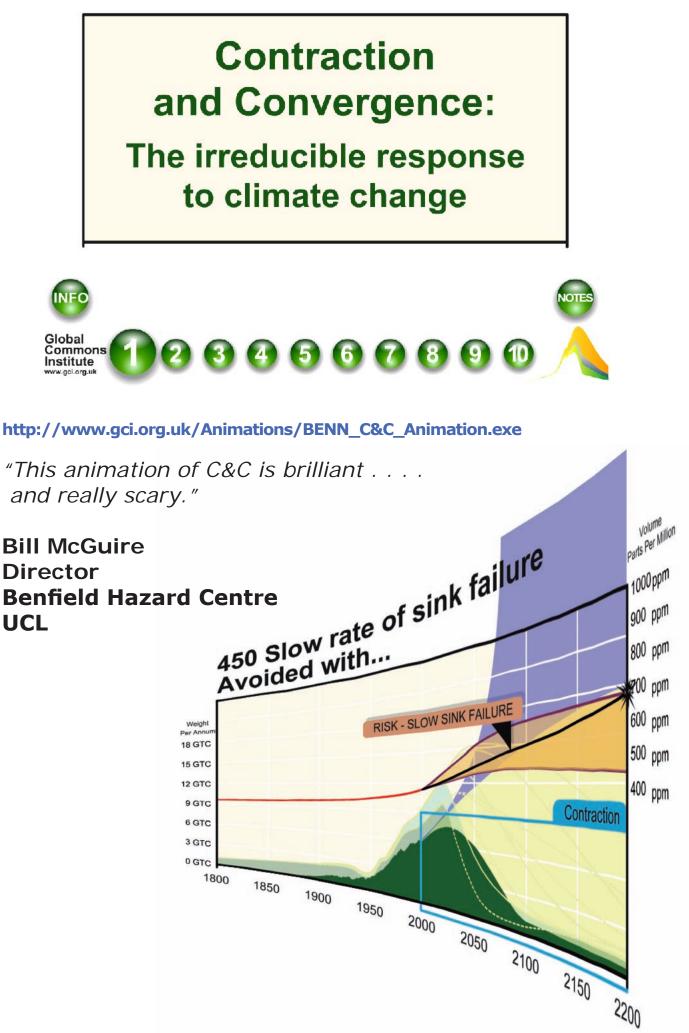
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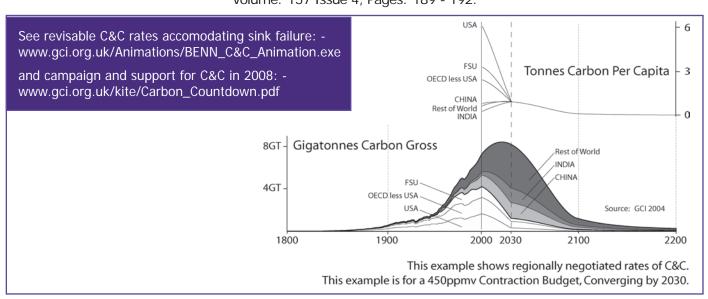


280 parts per million atmosphere CO<sub>2</sub> . . . . 380 ppm . . . . . . . . . 450 ppm [stable] 450 ppm



# **GCI BRIEFING: "CONTRACTION & CONVERGENCE"**

Published Institute of Civil Engineers, as "Briefing: Contraction and Convergence" in Journal: Engineering Sustainability [01/12/2004] Author A. Meyer, Print ISSN: 1478-4629, DOI: 10.1680/ensu.157.4.189.56900; Volume: 157 Issue 4, Pages: 189 - 192.



The Global Commons Institute [GCI] was founded in 1990. This was in response to the mainstreaming of global climate change as a political issue. Realising the enormity of the climate crisis, we devised a founding statement on the principle of "Equity and Survival". [1]

In November 1990, the United Nations began to create the Framework on Climate Convention [UNFCCC]. GCI contributed to this and in June 1992 the Convention was agreed at the Earth Summit in Rio. Its objective was defined as stabilizing the rising greenhouse gas [GHG] concentration of the global atmosphere. Its principles of equity and precaution were established in international law. Climate scientists had showed that a deep overall contraction of GHG emissions from human sources is prerequisite to achieving the objective of the UNFCCC. In 1995 negotiations to achieve this contraction began administered by the specially created UNFCCC secretariat.

Between 1992 and 1995 and at the request of the Intergovernmental Panel on Climate Change [IPCC], GCI contributed analysis highlighting the worsening asymmetry, or "Expansion and Divergence" [E&D] of global economic development. It became clear the global majority most damaged by climate changes were already impoverished by the economic structures of those who were also now causing the damaging GHG emissions. [2]

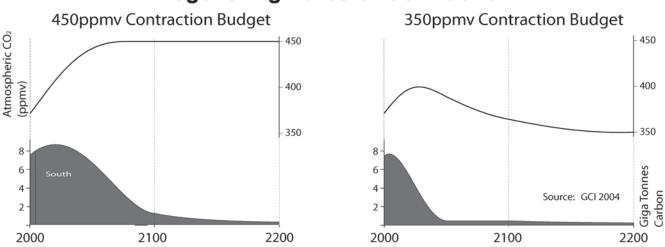
To create a sustainable basis on which to resolve this inequity, GCI also developed the "Contraction and Convergence" (C&C) model of future emissions. In 1995 the model was introduced by the Indian Government [3] and it was subsequently adopted and tabled by the Africa Group of Nations in August 1997. [4]

Negotiations for the Kyoto Protocol to the UNFCCC ran from 1995 until 1997. In December 1997 and shortly before they withdrew from these negotiations, the USA stated, "C&C contains elements for the next agreement that we may ultimately all seek to engage in." [5] 8 Since then C&C has been widely referenced in the debate about achieving the objective of the UNFCCC. In 2000 C&C was the first recommendation of the UK Royal Commission on Environmental Pollution in its proposals to government. [6] In December 2003 C&C was adopted by the German Government's Advisory Council on Global Change in its recommendations. [7] In 2003 the secretariat of the UNFCCC said the objective of the UNFCCC, "inevitably requires 'Contraction and Convergence'." [8] The Latin America Division of the World Bank in Washington DC said, "C&C leaves a lasting, positive and visionary impression with us." In 2004 the Archbishop of Canterbury took the position that, "C&C thinking appears utopian only if we refuse to contemplate the alternatives honestly." [9] In 2002, the UK Government accepted GCI authorship of the definition statement of C&C, recognising the need, "to protect the integrity of the argument."

This statement follows and is available in thirteen languages. [10] It has been adopted by the House of Commons Environmental Aundit Committee and in part in the UN's forthcoming "Millennium Assessment." In 2005, the UK Government will host the next G-8 summit. The Government has already committed this event to dealing strategically with the problems of Africa and Climate Change. Numerous civil society and faith groups are now actively lobbying the Government to have C&C adopted as the constitutional basis for avoiding dangerous future climate change.

- [1] http://www.gci.org.uk/signon/OrigStatement2.pdf
- [2] http://www.gci.org.uk/articles/Nairob3b.pdf
- [3] http://www.gci.org.uk/Archive/MegaDoc\_19.pdf [page 116]
- http://www.gci.org.uk/nairobi/AFRICA\_GROUP.pdf [4]
- [5] http://www.gci.org.uk/temp/COP3\_Transcript.pdf
- [6] http://www.gci.org.uk/Endorsements/RCEP Chapter 4.pdf [7]
- http://www.gci.org.uk/Endorsements/WBGU\_Summary.pdf [8]
  - http://www.gci.org.uk/slideshow/C&C\_UNFCCC.pdf
- [9] http://www.gci.org.uk/speeches/Williams.pdf
- [10] http://www.gci.org.uk/translations.html

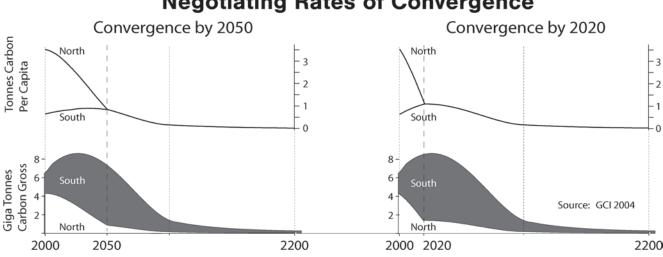
# "CONTRACTION & CONVERGENCE" - DEFINITION STATEMENT



# **Negotiating Rates of Contraction**

Annual Carbon Emissions contract over time to a sustainable level. This is the "Contraction Event". The Choice of a "safe" CO2 stabilisation level determines the total tonnage of carbon to be burnt during the contraction event. Two examples of CO2 stabilisation levels are shown above, with thier coresponding contraction budgets.

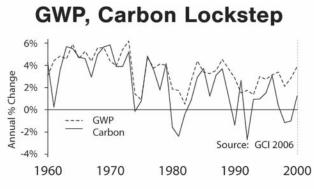
- 1. "Contraction and Convergence" (C&C) is the sciencebased, global climate-policy framework, proposed to the United Nations since 1990 by the Global Commons Institute (GCI). [1,2,3,4]
- 2. The objective of safe and stable greenhouse gas concentrations in the atmosphere and the principles of precaution 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 (GHGs) at a pre-agreed concentration maximum deemed to be safe, following IPCC WG1 carbon cycle modelling. (See Image Two on page two - 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 Three on page two) 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 One on page one).



Negotiating Rates of Convergence

Per capita emissions around the World converge on equality by a negotiated "Convergence Date". Two examples of convergence are shown here, each within a 450ppmv contraction budget.  $9^{9}$ 

- \* The inter-regional, inter-national and intranational tradability of these entitlements in an appropriate currency such as Energy Backed Currency Units [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 [6].
- 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 Four Page Three). 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 (Image 4 p 3).



Year to year percentage change of Gross World Product, GWP (measured in US\$) and Global Carbon emissions

- 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 (Image 3 p 2).
- 6. The UK's Royal Commission on Environmental Pollution [7] and the German Advisory Council on Global Change [8] both make their recommendations to governments in terms of formal C&C. Many individual and institutional statements supporting C&C are now on record. [9,10] The Africa Group of Nations formally proposed it to the UNFCCC in 1997. [11] It was agreed in principle at COP-3 Kyoto 1997 [12]. C&C meets the requirements of the Byrd Hagel Resolution of the US Senate of that year [13] the European Parliament passed a C&C resolution in 1998 [13] the UK Parliament has reported on C&C [15, 16, 17].

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.

- [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
- [4] http://www.gci.org.uk/images/C&C\_Bubbles.pdf
- [5] http://www.feasta.org/events/debtconf/sleepwalking.pdf
- [6] http://www.gci.org.uk/Animations/BENN\_C&C\_Animation.exe
- [7] http://www.rcep.org.uk/pdf/chp4.pdf
- [8] http://www.wbgu.de/wbgu\_sn2003\_engl.pdf
- [9] http://www.gci.org.uk/Archive/1989\_2004
- [10] http://www.gci.org.uk/consolidation/Sasakawa.pdf
- [11] http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
- [12] http://www.gci.org.uk/temp/COP3\_Transcript.pdf
- [13] http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
- [14] http://www.gci.org.uk/consolidation/UNFCC&C\_A\_Brief\_ History\_to1998.pdf [pp 27 - 32]
- [15] http://www.gci.org.uk/EAC/Climate\_C&C\_Report.pdf
- [15] http://www.gci.org.uk/EAC/Climate\_C&C\_Report.p
- [16] http://www.gci.org.uk/links/detail.pdf
- [17] http://www.gci.org.uk/briefings/Consensus\_Report.pdf

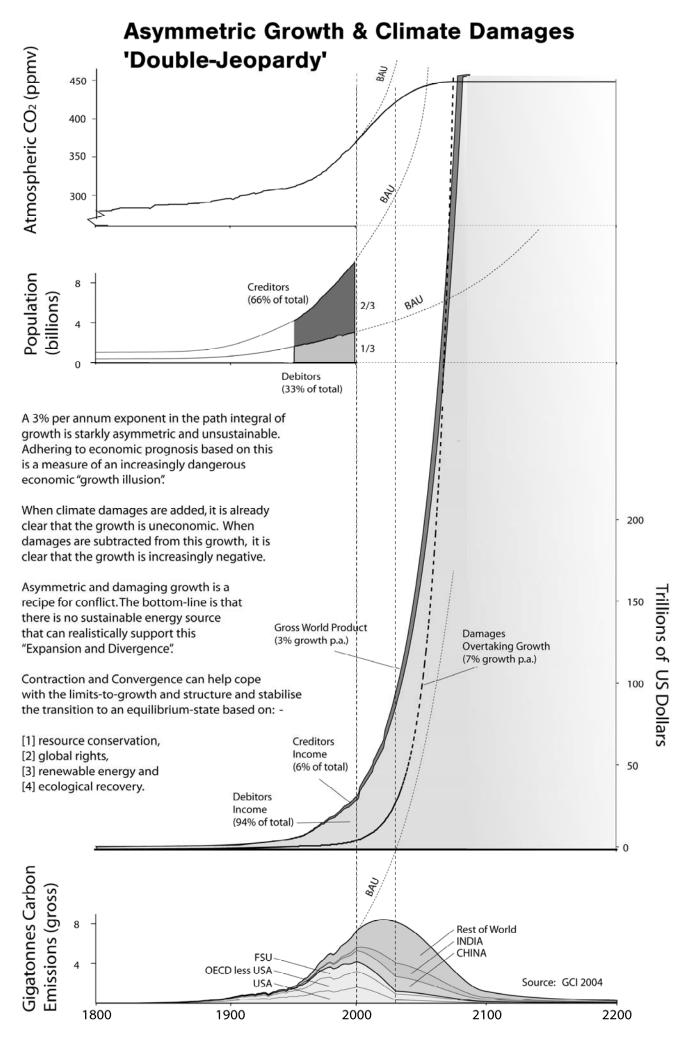
The charts on page four are stacked one above the other on the same horizontal time axis [1800 - 2200]. This helps to compare some of what is known about existing rates of system change with an underlying assumption in favour of a C&C arrangement being put in place.

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 7% 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 population have 94% of global purchasing power and cause 90% of GHG pollution. [We call these 'debitors']. The other two thirds, who live on less than 40% of the average global per capita income, collectively have 6% of global purchasing power and a 10% share of GHG pollution. [We call these '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 damages from climate changes.

Most institutions now acknowledge that atmospheric GHG stabilization, *"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.





House of Commons Environmental Audit Committee

# Beyond Stern: From the Climate Change Programme Review to the Draft Climate Change Bill

# Seventh Report of Session 2006–07

Report, together with formal minutes, oral and written evidence

Ordered by The House of Commons to be printed Tuesday 10 July 2007

HC 460 Published on Monday 30 July 2007 by authority of the House of Commons London: The Stationery Office Limited £0.00

#### "The Government's policy towards the UK's 2050 target is clearly incoherent."

"The Government remains committed to limiting global warming to a rise of 2oC; but it also acknowledges that, according to recent scientific research, a cut in UK emissions of 60% by 2050 is now very unlikely to be consistent with delivering this goal.

It is true that where the Stern Review talks about the required distribution of emissions cuts between developed and developing countries, it does (just about) correspond to the Government's existing line on its 2050 target. Referring to research which analyses four different mooted ways of apportioning emissions cuts **including Contraction and Convergence** - Stern concludes that "for all developed countries, action to meet a 450ppm CO2e goal would require quotas to be set in line with a reduction in emissions of 70-90% on 1990 levels by 2050, and for a 550ppm CO2e goal the reduction would be at least 60%."

But while the Office of Climate Change was justified in telling us that the "at least 60%" target in the draft Bill is within the range discussed in the Stern Review,94 this is clearly the minimum in emissions reductions which the Stern Review sets out. In fact, Stern states that this would correspond to a 63%-99% chance of exceeding a warming of 2oC, and describes this level of global warming as "a dangerous place to be, with substantial risks of very unpleasant outcomes".

We recommend that the 2050 be strengthened to reflect current scientific understanding of the emission cuts required for a strong probability at stabilising warming at 20C.

We recommend that the Government publishes the

rationale for its 2020 and 2050 targets, preferably including the central formula upon which they are based, in the Climate Change Bill. This rationale should make clear the size of complementary caps on annual emissions required of other blocs of nations, the stabilisation target for global atmospheric concentrations of greenhouse gases, and the resulting projected temperature rises, which are implied by the Bill's targets for annual emissions from the UK, as well as the central assumptions used by the Government in making these correlations.

The Bill should state that if the Secretary of State proposes to revise these targets, he must publish the rationale for the new target in like manner. Above all, the Government must draw attention, at home and abroad, not just to percentage targets for the annual emissions in a certain year, but even more to the absolutely crucial issue of the cumulative total budget of greenhouse gases that the world can afford to emit by 2050 if it is to have a reasonable chance of holding global warming to 2oC.

In terms of the way in which this cumulative global budget is divided up among individual nations, we recommend the Government explicitly endorses, and promotes internationally, the Contraction and Convergence method, or a method similar to it."

Under this method, emissions budgets allocated to each nation would beprogressively amended until all would arrive at an equal per capita level, consistent with an internationally agreed stabilisation level.

#### As we have previously noted, the Government has implicitly accepted this principle by endorsing the RCEP's recommendation for a 60% cut in UK CO2 which was based on Contraction and Convergence.

We have also concluded that any framework which involves radical emissions reductions would in practice resemble Contraction and Convergence, given the current imbalance in per capita emissions between the developed and developing world, and the resultant necessity for the bulk of emissions cuts to come from developed nations in order to meet a global stabilisation target.

But this only underlines the inconsistency in the Government's framing of a target to reduce UK emissions without advocating an international agreement based on Contraction and Convergence, or something very similar.



House of Commons Environmental Audit Committee

# The International Challenge of Climate Change: UK Leadership in the G8 & EU

# Fourth Report of Session 2004–05

Report, together with formal minutes, oral and written evidence

Ordered by The House of Commons to be printed Wednesday 16 March 2005

HC 105 Published on Sunday 27 March 2005 by authority of the House of Commons London: The Stationery Office Limited £26.00

# **Contraction and Convergence**

83. Such calculations provide an interesting and important perspective on the context in which negotiations on a post-2012 framework should take place. The Global Commons Institute (GCI) has been promoting the concept of equal per capita emission allocationssince its foundation in 1990, and it has coined the term "Contraction and Convergence" (C&C) to describe its approach. C&C involves two distinct stages—firstly defining the level to which global emissions need to be reduced to avoid dangerous climate change, and secondly allocating this level of emissions to countries on an equal per capita basis.

84. The C&C model put forward by the GCIdoes not in itself define the mechanisms bywhich emission reductions are to be achievedwhether through emissions trading, international taxes, or regulatory approaches. Nor does it stipulate the actual level at whichemissions should be stabilised, or indeed the timescales over which the targets should beset. It does, however, graphically illustrate the conse-

quences of varying these parameters, and provides a useful framework within which to set targets and frame policy responses. The real strength of the model, however, arises from the manner in which the concept of equity underpins it.

85. Given the scale of the reductions which are needed, there is now a growing awarness of the need for a 'full-term' framework such as the one C&C provides. Indeed, it is difficult to argue with the fundamental principle of equal per capita allocations, and variouswitnesses—including the Under-Secretary of State of the Foreign Office and the Director-General of the CBI—acknowledged the viability of the model.68 This is also reflected in thejoint memorandum submitted by DEFRA and the FCO, 69 and in the recent report from the International Climate Change Taskforce which explicitly accepted that equal per capitaemissions allowances should form the basis for a long-term solution. While, in their memorandum to us, Barclays Capital set out a vision of an all-embracing international ETSinvolving 60 year targets determined by a C&C approach.

86. Any framework which involves radical emission reductions would in practiceresemble the Contraction and Convergence approach advocated by the Global Commons Institute. Indeed, in terms of domestic policy aims, the UK Government has already implicitly accepted this approach in adopting the 60% carbon reduction target for 2050; and it is therefore inconsistent not to adopt such an approach internationally. We do not see any credible alternative and none was suggested in evidence to our inquiry. We therefore recommend that the UK Government should formally adopt and promote Contraction and Convergence as the basis for future international agreements to reduce emissions.

# Contraction and Convergence: THE PROPORTIONATE RESPONSE TO CLIMATE CHANGE





AUBREY MEYER DIRECTOR, GLOBAL COMMONS INSTITUTE

The United Nations Framework Convention on Climate Change (UNFCCC) was agreed in 1992 with the objective to halt the rising concentration of greenhouse gas (GHG) in the atmosphere. In 2007, efforts to this end remain insufficient and the danger of 'runaway' rates of global climate change taking hold is increasing. The science-based, global climate policy framework of Contraction and Convergence (C&C) offers an equitable solution to cutting carbon emissions in the hope that global collective efforts to reduce emissions can be successful. Three elements are at the core of the C&C campaign: the constitutional concept of Contraction and Convergence (C&C); the techniques and processes developed to focus the debate on rates of C&C that are relevant: the sustained effort to present C&C as the basis of the proportionate response to climate change.

# **THE BASIS OF C&C**

Technically, the C&C model is a coherent and mathematically-stable framework. It holds the sciencepolicy content together as a unity; science-based on the contraction side of the argument and rights-based or 'constitutional' on the 'political' side of the argument. C&C is in effect a bill of rights; it simply plots a full term event for achieving equal *per capita* emissions rights globally (Convergence) but governed by the overall emissions limit over time that stabilises the atmosphere concentration of GHG at a 'safe' value (Contraction).

( It becomes possible to go beyond the merely aspirational character of the current debate around the UNFCCC, to communicating the rationale and constitutional calculus of C&C. ))

The UNFCCC makes C&C generically true, but C&C specifically embraces a calculus built on this truth that strategically focuses the negotiations at the Climate Convention on two necessarily finite, global assumptions:

- ➤ A trajectory to a safe and stable atmospheric GHG concentration limit, allowing for a range of calculations of the global emissions contraction limit to carbon consumption consistent with that.
- The calculation of equal rights to the global total of emissions permits to the global total of people consuming within that limit, again allowing for different rates of convergence and even a population base-year to be considered. This is in preference to the irresolvable complexity of assuming any inequality of rights.

With this calculus, C&C captures the goal focus of the UNFCCC process in a structure of reconciliation. It is a universal first order numeraire. From this it becomes possible to go beyond the merely aspirational character of the current debate around the UNFCCC, to communicating the rationale and constitutional calculus of C&C.

# **THE LONG TERM PAST**

Figure 1 shows data from ice cores for half a million years before industrialisation. Throughout this period, with natural sinks for  $CO_2$ , such as the oceans and the forests in balance with the natural sources, the level of atmospheric  $CO_2$  concentration varied between 180 and 280 parts per million by volume (ppmv) averaging at 230 ppmv.

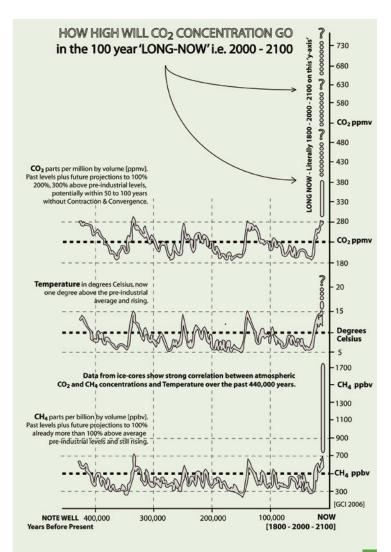
Since 1800 with the onset of industrialisation and fossil fuel burning, human emissions have caused the concentration of  $CO_2$  to increase by over 40 per cent to 380 ppmv. The rise in ppmv  $CO_2$  is higher and faster than anywhere in the historical record. This rise is because  $CO_2$  emissions from human sources, particularly  $CO_2$  from fossil fuel burning, are going to the atmosphere and accumulating. Furthermore, for the past 200 years, on average 50 per cent of any year's human emissions has remained in the atmosphere while the remaining 50 per cent has returned to the natural sinks.

# **(** Instead of 100 years, we now realise that to reduce human $CO_2$ emissions and other GHGs in the atmosphere to zero globally, we have only the next 50 years. **77**

A slowly increasing fraction of these emissions in the atmosphere remain there, accelerating the rise in concentrations even more. Column one in Figure 2 (see overleaf) demonstrates that the average retention over the past decade has increased from 50 per cent to 60 per cent. This recognises that the capacity of the natural sinks for  $CO_2$  capture is now gradually declining. If this continues unchecked as the graphics suggest, the rise in the concentration of atmosphere GHG will accelerate towards the level at which dangerous rates of rise translate to a climate change crisis that becomes unavoidable. To be UNFCCC-compliant, we need to enact C&C now to prevent the chaos that is otherwise inevitable.

# THE SHORT TERM PAST AND FULL TERM FUTURE LIMITS

The UNFCCC objective is to avoid dangerous rates of climate change by stabilising concentrations and we are all both circumstantially and legally bound by this. Compliance is governed by the need for a finite answer to the questions: 'what is a safe GHG concentration value for the atmosphere?' and 'what is the scale of the full term emissions contraction event required to achieve it'?



# Figure 1: Data from ice cores 500,000 years ago to present day and beyond.

Without answers, traditional evaluation of the economics of abatement and the social consequences is not possible. Because of weakening sinks, analysis now shows that to stabilise GHG concentration in the atmosphere below the level that prevents dangerous rates of climate change taking hold, requires a rate of overall emissions control that is faster than was previously assessed. Instead of 100 years, we now realise that to reduce human  $CO_2$ emissions and other GHGs in the atmosphere to zero globally, we have only the next 50 years [IPCC AR4 and Hadley Centre, 2007].

As activities under the Kyoto Protocol show, unless we are visibly organising globally by a shared commitment not to exceed that safe concentration number, the probability increases that our collective efforts to avoid dangerous rates of climate change will be too little too late.

Already under Kyoto, the slight gain of  $CO_2$  emissions avoided has been more than negated by more carbon accumulating in the atmosphere at an accelerating rate as the result of changes in the climate system as a whole. Consequently, a global arrangement for emissions control in future that is sufficient in the light of this is *sine qua non* for success. As the original authors of the UNFCCC understood at the outset, embracing this primary question of the sufficient, and indeed the proportionate response, is fundamental to the whole global engagement.

# Figure 2: Charting the UNFCCC Objective & Principles, the Development Benefits of Growth versus the growth of Climate Change Related Damage Costs. (http://www.gci.org.uk/images/Proportionate\_Response.pdf)

Columns one and two address the objective and principles of the UNFCCC. Columns three and four compare the development benefit of growth with the growth of climate damage and costs. The left hand side of each graph shows:

- Expanding fossil fuel emissions of CO<sub>2</sub>, measured in billions of tonnes of carbon between 1800 – 2000.
- Rising concentration of atmospheric CO<sub>2</sub> as parts per million by volume (ppmv) between 1800 – 2000.

The key questions for integration are in four columns:

**Column 1**: Contraction and Concentration: what is a safe level of concentrations and, in the light of sink failure, how rapid must contraction be to avoid GHG concentration going too high in future?

**Column 2**: Contraction and Convergence: what is the internationally equitable agreement necessary to ensure this level is not exceeded?

**Column 3**: Contraction and conversion: what is the rate at which we must convert the economy away from fossil fuel dependency?

**Column 4**: Damage costs and insecurity: what is the environmental and economic damages trend associated with this analysis?

Each Row has a different level of Risk projected across the four columns:

- C1 (bottom row) Acceptable risk: global GHG emissions contraction complete by 2050 so concentrations end up around 400/450 ppmv with damages potentially still under control.
- C2 (middle row) Dangerous risk: global GHG emissions contraction complete by 2100 so concentrations keep going up through 550/750 ppmv with the illusion of progress maintained, while damages are going out of control.
- C3 (top row) Impossible risk: global GHG emissions contraction complete by 2200 so concentrations keep going up through 550/950 ppmv while the illusion of progress is being destroyed, damages costs are destroying the benefits of growth very quickly and all efforts at mitigating emissions become futile.

In each graph, different futures are projected on the righthand side as scenarios or rates of change that are linked to the objective of the UNFCCC where three levels of risk for stabilising the rising concentration of  $CO_2$  are understood in the light of the rising fraction of emissions that stays airborne.

# See next pages for chart summary and link to animation

#### DAMAGES

We are still locked into causing global climate change much faster than we are mitigating it. Treating climate change as a global emergency is now long overdue and responding proportionately is vital. Unless the risk analysis is focused by this understanding, our best efforts will be in vain.

According to the reinsurers, the weather-related damages trend is growing at twice the rate of the global economy, see Figure 2, column four. To prevent this damage trend from running out of control, emissions need to contract to zero globally by 2050 if it is to be fast enough to stabilise atmosphere GHG concentrations at a level that prevents change accelerating uncontrollably. This is corroborated by the latest coupled climate modelling results from the UK Government's Hadley Centre, published in the IPCC Fourth Assessment. While the notion of global emissions control is certainly heroic, the only vector of the problem over which we can still posit direct control, is our GHG emissions and thereby the level to which GHG concentrations will rise in the future.

With this integrated approach we can more clearly visualise the challenge within a finite calculus of collective responsibility, and so keep focused on the imperative of solving the problem faster than we are creating it. Communicating and implementing this remains the primary challenge.

VISIT: WWW.CLIMATEACTIONPROGRAMME.ORG

#### A FRAMEWORK-BASED MARKET

With the C&C operational framework, we can compare how much must be achieved globally to avoid dangerous climate change, with the widening margins of error in which we are becoming trapped.

# **C** Treating climate change as a global emergency is now long overdue and responding proportionately is vital. **77**

There are more complicated 'alternatives to' and 'derivatives from' C&C. While defending the evolutionary nature of the politics, these have also attempted to be non-chaotic. They include for example the Kyoto Protocol, which seeks to interpose a partial and random marketbased framework in support of the Convention. But such an evolutionary response to its objective and principles is guesswork by definition, and there is no evidence



supporting claims that merely incremental activity at the margins will collectively generate a sufficient response fast enough to be effective. Until recently, the unguided inertia of evolutionary process under the Kyoto Protocol has been projected as *ne plus ultra*.

**C**&C overcomes the stand-off where a one sided agreement is not an agreement and where half an argument is not, nor will ever become, a whole solution. It recognises that separate development is not sustainable development. **7** 

The fact is that this is a lottery where everybody loses. This approach has obscured the global objective of safe and stable concentrations and the obviously urgent need for a trajectory to this objective by design.

C&C starts with an integral response to the Convention's objective and allowing a full term framework-based market to result, where:

Equity as collateral is the 100 per cent entirety of the emissions contraction event necessary for concentration stability.

Satellite image of Hurricane Katrina, which has cost the southeastern US billions of dollars. Damages from extreme weather events are increasing with climate change.

- The social equity as the equal per person claim on the same 100 per cent throughout that event but softened by convergence.
- The commercial equity is the shares pre-distributed this way sum to the same 100 per cent and are tradable so as to accelerate the positive sum game for the emissions-free economy that must emerge if we are to prosper in the future.

In a nutshell, this integration puts rational principle ahead of stochastic practice in order that the former guides the latter. In practice this arrangement is flexible and will create a lucrative framework-based market for the zero emissions industries within a future structure that corrects and compensates for the asymmetric consumption patterns of the past while saving us all from dangerous rates of climate change.

In this context C&C overcomes the stand-off where a one sided agreement is not an agreement and where half an argument is not, nor will ever become, a whole solution. It recognises that separate development is not sustainable development.

In September 2007, the German Government recognised this when mediating between supporters and opponents of the Kyoto Protocol with C&C as the basis of the post-Kyoto agreement. Their urgent call for a whole and proportionate solution should be supported vigorously.

Aubrey Meyer grew up studying music in the separate development of apartheid South Africa. The proportionate response to global environmental limits now imposed by climate change emerged easily as the constitutional logic of Contraction and Convergence or 'C&C'. As in South Africa, the reality was that separate development was not sustainable development. The C&C model proportions this possibility as justice without vengeance and climate chaos.

In 1990, aged 43, he put brackets around a successful career in music and co-founded the Global Commons Institute (GCI) in London. Since then he has campaigned at the United Nations negotiations on climate change to win acceptance of the management of global greenhouse gas emissions through a framework of scientific truth and political reconciliation, or 'Contraction and Convergence' (C&C). The structure, imagery and animations of C&C created by Meyer over the years have been variously described as, "morally and intellectually coherent", "beautiful" and C&C itself as "the single most elegant and important idea currently awaiting adoption by humanity".

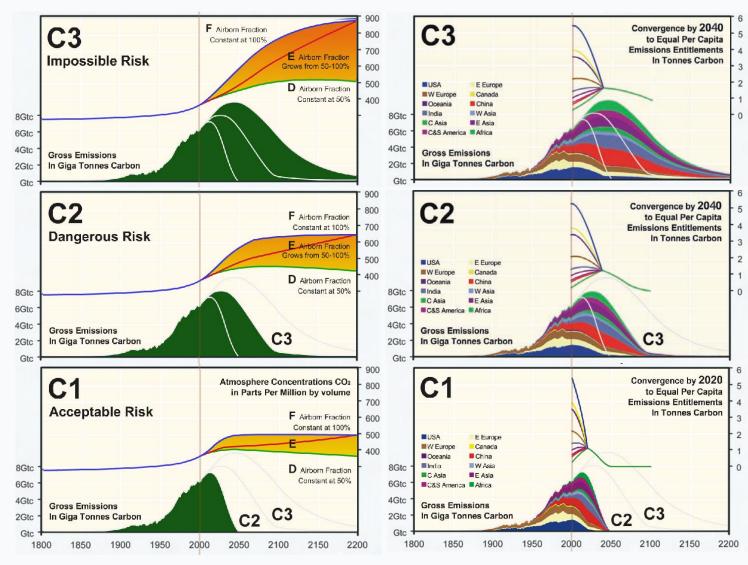
# UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

# OBJECTIVE

# PRINCIPLES Precaution Equity

# Contraction & Concentrations

# Contraction & Convergence



This entire animation is on-line at: - www.gci Touch buttons to advance within scenes and

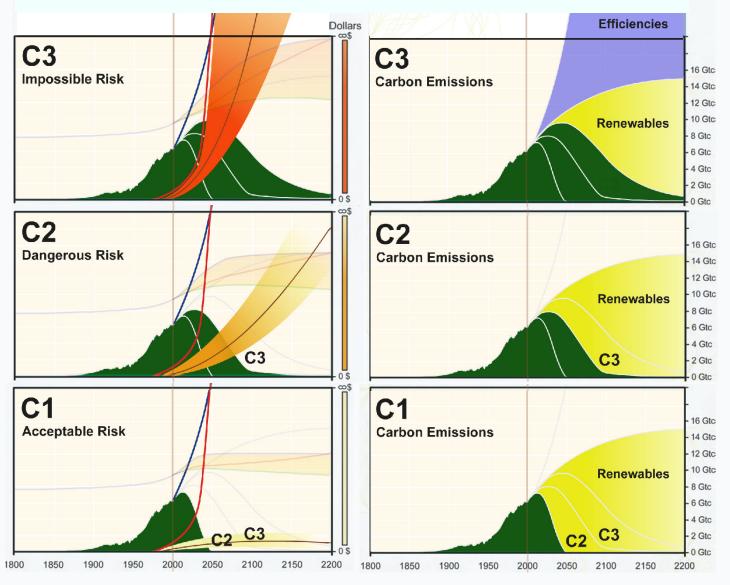
# GLOBAL CLIMATE CHANGE DAMAGE-COSTS/DEVELOPMENT-BENEFITS

# DANGEROUS CLIMATE CHANGE

# Damage Costs & Insecurity

# UN/SUSTAINABLE DEVELOPMENT

# Contraction & Conversion



.org.uk/images/Final\_presentation.exe ogos <a href="https://www.sentation.exe">https://www.sentation.exe</a> ogos <a href="https://www.sentation.exe">https://www.sentation.exe</a> "Long before the end of the UNFCCC negotiation, GCI presented a proposal on Contraction & Convergence. We all in this room know the model. Level of contraction and timing of convergence should be negotiated on the basis of the precautionary principle. Suggestions for emission eductions are well known and convergence should be achieved at medium term to satisfy legitimacy."

# Raul Estrada; Chairman Kyoto Protocol Negotiations

"Achieving the goal of the climate treaty [stabilize GHG concentrations] inevitably requires contraction & convergence." Joke Waller Hunter; UNFCCC Executive Secretary

"We urgently need a framework, with the necessary targets intelligently applied of the right time-frame that takes us beyond 2012. It can only happen if the US, China and India join with Europe and Japan and others to create such a framework. Will Montreal be another round of division or the sound, rational, science-based unity, which ensures the right legallybinding framework to incentivise sustainable develoment."

#### **Tony Blair; Former UK Prime Minister**

"Equity guides the route to global ecological recovery. Tradable Emissions Quotas will make matters worse unless set as targets and time-tables for equitable emissions reductions overall. This means convergence at sustainable parity values for consumption on a per capita basis globally."

#### Indian Government; COP 1 1995

"When we ask the opinions of people from all circles, many people, in particular the scientists, think the emissions control standard should be formulated on a per capita basis. According to the UN Charter, everybody is born equal, and has inalienable rights to enjoy modern technological civilization."

# China State Counsellor Dr Song Jian; COP 3 1997

"We support India and propose Contraction & Convergence of global emissions. You cannot talk about trading if there are not entitlements; Contraction & Convergence comes into play when we talk about issues of equity"

# The Africa Group; Kyoto COP 3 1997

"It does seem to us that the proposals by India and others who speak to Contraction and Convergence are elements for the future, elements perhaps for a next agreement we may ultimately all seek to engage in." United States of America; COP 3 1997

"A set of common principles must be based on a worldwide binding limit on global emissions consistent with a maximum atmospheric concentration [contraction] with progressive convergence towards an equitable distribution of emissions rights on a per capita basis by an agreed date with across-the-board reductions in emissions rights thereafter." **European Parliament Resolution; 1998** 

"Since 1992, we have fallen too far behind in the fight against global warming. We cannot afford any further delay. Let us start thinking about the post-Kyoto period without further ado. France proposes the convergence of per capita emissions. This principle would durably ensure the effectiveness, equity and solidarity of our efforts." President Jaques Chirac, COP 6 2000

"In the final analysis the per capita emissions in emerging economies will meet those of industrialised countries. I cannot imagine the emerging economies will one day be permitted to emit more CO2 per capita than we in the industrialised countries. With this proposal, emerging nations with rapidly expanding economies could be on board the global climate negotiations scheduled for 2009."

# Angela Merkel; President of Germany 2007

"The international climate regime should be based on legitimate principles of equity, such as long-term convergence of emission levels per capita in the various countries."

President Nicholas Sarkozy & Angela Merkel, June 2008

























"Sweden strives for a global emissions target converging to equal per capita for all. For poorest countries to continue development requires industrialised countries reduce their emissions." Kiell Larsson, Environment Minister 2000

> "Emissions should converge towards a common international emissions target per inhabitant."

#### **3rd National Climate Communication 2001**

"Contraction & Convergence secures a regime where all nations join efforts to protect our global commons without the risk that any country is deprived of its fair share of the common environmental emission space." Svend Auken, Danish Environment Minister 1999

"We are conscious that in the end, we will have inevitably to evolve towards a more equitable partition between the North and the South of the capacity of our common atmosphere to support greenhouse gases by a gradual convergence of levels of emissions on a per capita basis."

#### Olivier Delouze, Belgian Environment Minister 2000











"If we agree to per capita allowances for all by 2030 [so that global emissions stay below 450 ppm 20 global temperature rise] then assigned amounts for Annex One countries would be drastically reduced. However, because all countries would have assigned amounts, maximum use of global emissions trading would strongly reduce the cost of compliance. In such a scenario Industrial Countries would have to do more, but it would be cheaper and easier."

#### Jan Pronk Dutch Environment Minister; COP6 2000

"We do not believe that the ethos of democracy can support any norm other than equal per capita rights to global environmental resources." Prime Minister India; COP 8 2002

"To forestall further damage deeper cuts in greenhouse gas emissions than as presently contained in the Kyoto Protocol are urgently required and these must be organised as universal equal entitlements as engraved in the principles of the Contraction & Convergence Framework."

#### Kenya Government; COP 11 2005

"Conference recognises the urgent need for action to mitigate climate change given the potentially disastrous consequences for the planet. We pledge to achieve a low carbon emitting society and commit the SNP to supporting the adoption of the internationally-recognised principle of "Contraction and Convergence"."

#### Alex Salmond Leader Scottish National Party

Liberal Democrats argue for the principle of contraction and convergence with the long-term goal of equalising per capita emissions across the world. Chris Huhne Liberal democrats

"I urge the UK Government to provide leadership on climate change by committing itself to Contraction and Convergence as the framework within which future international agreements to tackle climate change are negotiated. I confirm that the party also supports this pledge." Simon Thomas Policy Director Plaid Cymru

"The Kyoto Protocol says nothing about the future beyond 2012. To address that timescale the Green Party advocates the adoption by the UNFCCC of a framework of Contraction and Convergence (C&C) as the key ingredient in the global political solution to the problem of Climate Change mitigation, and urges the UK and other governments use it as the basis for negotiations in the international fora."

**Green Party Real Progress Climate Policy Statement** 

"Any framework which involves radical emission reductions would in practice resemble the Contraction and Convergence approach advocated by the Global Commons Institute. Indeed, in terms of domestic policy aims, the UK Government has already implicitly accepted this approach in adopting the 60% carbon reduction target for 2050; and it is therefore inconsistent not to adopt such an approach internationally. We do not see any credible alternative and none was suggested in evidence to our inquiry. We therefore recommend that the UK Government should formally adopt and promote Contraction and Convergence as the basis for future international agreements to reduce emissions."

# Environmental Audit Committee House of Commons

"The Government should press for a future global climate agreement based on the Global Commons Institute's "Contraction and Convergence" approach as the international framework within which future international agreements to tackle climate change are negotiated. These offer the best long-term prospect of securing equity, economy and international consensus." **Royal Commission on Environmental Pollution** 

"Contraction & Convergence helps greatly. It is inclusive and makes clear what needs to be achieved. Without such a shared model, there will not be the necessary relationships that create the new and exciting possibilities and the trust for shared action."

# Chris Mottershead Distinguished Advisor Energy & Environment British Petroleum plc

"Almost any conceivable long-term solution to the climate problem will embody a high degree of contraction and convergence. Atmospheric concentrations of GHGs cannot stabilize unless total emissions contract; and emissions cannot contract unless per capita emissions converge."

# John Ashton UK Climate Ambassador Pew Report

"The solution to climate change requires a globally equitable model of emissions reductions. The Contraction and Convergence model calls for already large polluting countries to cut their emissions, while newly industrialising countries increase theirs, up to the point that we converge at a sustainable level. That, I hope, will be the ethos that will guide cities around the world." **Ken Livingstone Mayor of London** 

"I admire GCI's Contraction and Convergence model and their now nearly twenty year crusade by to get it established as the international basis of policy to meet the objective of the UN Climate Treaty. Their presentation of it is a dauntingly hard act to follow."

# Nick Butler Director Cambridge Energy Studies

*"I support the concept of Contraction and Convergence as does the Environment Agency"* 

# Sir John Harman Chairman UK Environment Agency

"An international agreement is essential. It must be based on the criteria of effectiveness, efficiency and equity. Effectiveness demands a long-term global goal capping global emissions and providing a long-term trajectory for investment in low carbon technologies. This should be at least a halving of global emissions by 2050. A pragmatic principle of equity would require an equalisation of per capita emissions by then. This will require developed countries to cut by around 80%."

# Nicholas Stern UK Government Economist

"... there is an emerging proposal here that is important and helpful - a broad long-term commitment to equal per capita emissions. It's a tough proposal. If we take it as part of the progressive agenda to move to that it will be helpful in bringing the world together as it brings the developing countries as part of this effort with an ethical and political commitment, not immediate, but towards convergence in terms of per capita emissions." **Kemal Dervis Chief Administrator UNDP** 





















"Business and government cannot solve the problem alone. Solutions must be global and participation of all major emitters is essential. Companies cannot determine the scale of needed investment without a stabilization threshold for greenhouse gas concentrations. The short-term "patchwork" of the Kyoto Protocol is not cost-effective. A global long term, market-based policy framework in a new partnership with China, India, Brazil, South Africa and Mexico is needed. Emissions rights with common metrics that can be adjusted over time to reflect evolving developments will ensure that a truly global solution to the problem is achieved."

# **G8** Climate Change Roundtable Companies & CEOs

ABB, Fred Kindle, CEO Alcan, Travis Engen, President and CEO BP, John Browne, Group Chief Executive British Airways, Martin Broughton, Chairman BT, Ben Verwaayen, CEO Cinergy, James E. Rogers, Chairman, President & CEO Cisco, Robert Lloyd, President, Operations, Europe, M East, Africa Deloitte, John Connolly, CEO Global MD, Deloitte, Touche Tohmatsu Deutsche Bank, Tessen von Heydebreck, Board of Managing Directors E.ON, Burckhard Bergmann, CEO and Member of the Board EADS, François Augue, Head of Space Division EdF, Pierre Gadonneix, Chairman and CEO Eskom, Reuel J. Khoza, Non-Executive Chairman Ford, William Clay Ford, Chairman and CEO HP, Mark Hurd, President and CEO HSBC, Sir John Bond, Group Chairman RAO UESR, Anatoly B. Chubais, CEO Rio Tinto, Paul Skinner, Chairman Siemens, Klaus Kleinfeld, President and CEO Swiss Re, Jacques Aigrain, Deputy CEO Toyota, Katsuhiro Nakagawa, Vice Chairman Vattenfall, Lars G. Josefsson, President and CEO Volkswagen, Bernd Pischetsrieder, Chairman

> "A formulation that takes the rights-based approach to its logical conclusion is that of Contraction and Convergence" [GCI] IPCC WG3 Third Assessment Report

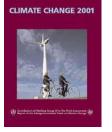
"The global framework develops so that CO2 concentration in the atmosphere is held at or below 400 ppmv. This long-term climate objective is met by ensuring that short-term targets are linked to and consistent with it, with a gradual transition towards a system of equal per capita rights to use the absorptive capacity of the atmosphere." **Stephen Byers MP International Climate Task Force** 

"The Byers report refers to a new basis of equity and common, but differentiated, responsibilities. We need environmental equity with a cap and trade programme. Contraction and Convergence is the name that we must give to it. We must link that battle with the battle against poverty." UK All-Party Parliamentary Group on Climate Change

"Policy-makers need consensus on a global framework for climate stability based on principles of precaution and equity such as Contraction and Convergence." UNEP Financial Initiative "

> "To make provision for the adoption of a policy of combating climate change in accordance with the principles of . . . "Contraction and Convergence" and for connected purposes." Colin Challen Chair All-Party Group Climate Change

There is no other method of rationally and ethically guiding global reductions in greenhouse gas emissions." **Royal Institute of British Architects** 













"Contraction and Convergence - The logic is compelling. It is a formula for future global emissions that could, without exaggeration, save the world. Some environment groups such as Greenpeace see the formula as a dead-end. They are profoundly wrong." **Vote for New Statesman best climate framework** Results January 2008 . . .

2% are saying Kyoto Protocol 81% are saying Contraction and Convergence 12% are saying Kyoto2 5% are saying Greenhouse Development Rights

"A framework involving technology together with social, political and economic change with quantifiable targets is the only way forward. This is why we support the wellknown concept of "Contraction and Convergence" (C&C) as proposed by the Global Commons Institute as the basis for the agreement. It satisfies developing countries' demands for equity and US demands that major developing countries such as China and India be involved in any targets." **Scientists for Global Responsibility** 



"I note what you say about Aubrey Meyer's Contraction and Convergence proposal and I agree that in the fight against climate change C&C makes an important contribution to the debate on how we achieve long-term climate stability taking account of the principles of equity and sustainability."

# **Tony Blair UK Prime Minister**

"The Churches can give their backing to Contraction and Convergence publicly and unanimously because at its core, it is just. It appears Utopian only if we refuse to contemplate the alternatives honestly." **Dr Rowan Williams Archbishop of Canterbury** 

"Climate change is likely to impose massive economic costs. The case for being prepared to spend huge resources to limit it is clear as the cost will be repaid many times over by the avoidance of disaster. The developed world does not have the moral right to increase the risk of flooding in Bangladesh. Long term the only sound strategy is that of contraction and convergence cutting greenhouse emissions to the point where they are shared equally, worldwide, on a per capita basis."

# Lord Adair Turner Chairman of Climate Committee

"We believe contraction and convergence is the best way forward because it recognises that growth in energy use in developing countries will happen. Even if we could achieve a reverse in trends of energy use in developed countries, there is not yet anywhere enough alternative and renewable energy available to get us off of fossil fuels fast enough. For the developing world the situation is even more urgent because that is where most energy intensive industrial and manufacting activity is heading." **Tim Smit CEO The EDEN Project** 

"An approach receiving significant attention is Contraction and Convergence, the science-based global climate-policy framework proposed by the Global Commons Institute with the objective of realizing safe and stable greenhouse gas concentrations in the atmosphere. It applies principles of precaution and equity, principles identified as important in the UNFCCC but not defined, to provide the formal calculating basis of the C&C framework." **Bob Watson Former Chairman IPCCC** 











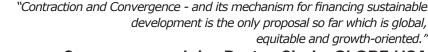












# Congressman John Porter Chair, GLOBE USA

"The idea of 'Contraction and Convergence' is destined to be one of the most important principles governing international relations in the 21st century. It is a powerful ethic that incorporates global justice and sustainability and thereby bridges the dominant concerns of the last century and this one.

It is the only way to accommodate the interests, ethical and economic, of developing countries and rich countries in the struggle to find a solution to the most important environmental problem facing the world."

# **Dr Clive Hamilton The Australia Institute**

"The approach of contraction and convergence presents a new economic development paradigm for the twenty first century and beyond." Mrs. Rungano Karimanzira Chair, Africa Group

"The most realistic way to bring about the required reduction in ghg emissions (which will have the combined effect of reducing the damage imposed on the insurance industry and encouraging the transition to renewable energy) is that proposed in the concept of Contraction and Convergence."

# **UK Chartered Insurance Institute**

"Any political solution to climate change will need to be based on reductions in emissions, otherwise known as contraction. As the climate is

THE CHARTERED INSURANCE INSTITUTE

> International Federation of Red Cross and Red Crescent Societies

owned by no one and needed by everyone, we will also have to move towards equally sharing the atmosphere, known as convergence. Collective survival depends on addressing both." World Disasters Report 2000 International Red Cross/Crescent

"The vision of "Contraction and Convergence" combines ecology and equity most elegantly." **Heinrich Boell Foundation** 

"The assiduous campaigning over the last decade by the Global Commons Institute - based on its idea of' 'contract and converge' - under which the rich nations undertake to reduce emissions even as developing nations are permitted to grow their emissions until such time as per capita emissions converge at the same level, has given this kind of approach some real credibility. So, too, has the readiness of developing countries such as China, Brazil, Indonesia and Argentina to accept emissions targets for their own counties - not least because they are already beginning to feel the



impacts of climate change. The real strength of this approach is that it is based upon a trading system, with rich nations needing to purchase additional carbon credits from poorer nations. This appeals a lot to those campaigning for global economic justice: a global trading system in carbon would begin to shift substantial resources from rich countries to poor countries as nations with wasteful, carbon-intensive lifestyles had to purchase additional carbon credits from nations with low-carbon economies."

# Jonathon Porritt Forum for the Future



"There are a number of measures (of varying scale) that can be used to reduce the amount of CO2 that is being emitted, these include: -Contraction and convergence conceived by the Global Commons Institute (GCI) in the early 1990s consists of reducing overall emissions of GHGs to a safe level, 'Contraction', where the global emissions are reduced because every country brings emissions per capita to a level which is equal for all countries, 'Convergence'." BMA 2008 - "How can the impact of climate change be reduced?"

"Admiration is frequently expressed, regarding the elegance and simple logic of Contraction and Convergence and it has been widely supported by policy makers as a basis that should underlie the next stage of policy formulation."

#### Sir John Houghton, Former Chair IPCC Working Group One

"Many governments around the world have accepted the concept of Contraction and Convergence as the only equitable response mechanism to the threat of climate change." **Grace Akumu** 

# Director, Climate Network Africa

In the end, they will need to give much weight to equal per capita rights of emissions. They will need to allow long periods for adjustment towards such positions—within the over-riding requirement to stay within an environmentally responsible global emissions budget. One possible way of bringing these two elements together would be the "contraction and convergence" approach that has been discussed favourably in Germany and India.

# **Ross Garnault** Climate Strategist Australian Goverment

"I not only support the C&C concept, I find it inconceivable that we will avert climate catastrophe without a regime built on some variation of this approach. In the debate about climate change, an impression has been created that the problem is too daunting and complex to prevent. Contraction and Convergence provides a way forward that is both fair and feasible."

# John Ritch World Nuclear Association

"It is absolutely remarkable that the idea of Contraction and Convergence has taken such a firm hold worldwide in such a short space of time."

# Tessa Tennant, Chair Association for Sustainable & Responsible Investment in Asia

"Contraction and Convergence is an extermely powerful idea and we are moving remorselessly towards it." Michael Meacher

# Former UK Environment Minister

"... an approach receiving significant attention is Contraction and Convergence [C&C] a science-based global framework whereby total global emissions are reduced (contraction) to meet a specific agreed target, and the per capita emissions of industrialized and the developing countries converge over a suitably long time period, with the rate and magnitude of contraction and convergence being determined through the UNFCCC negotiating process. It applies principles of precaution and equity; principles identified as important in the UNFCCC but not defined."

# World Bank on Contraction and Convergence

"A brilliant, imaginative and simple means of reaching a just global agreement on emission reductions is called Contraction and Convergence (C&C). It was first proposed by the Global Commons Institute (GCI) in 1990. Recognition of its unique qualities as a framework for combating climate change has grown at an astonishing rate since that date."

# Mayer Hillman Author of How We Can Save the Planet

"In the light of the long-term perspective two basic requirements must be met: Stabilisation of greenhouse gases in the atmosphere at a level in accordance with the overall objective of the Climate Change Convention. A fair distribution of rights and obligations, by establishing the concept of percapita emission rights for all countries, as proposed in the 'Contraction and Convergence' scheme."

# David Hallman World Council of Churches





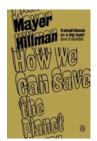
















"The Scientific Case for Setting a Long-Term Emission Reduction Target. The framework of this study builds on the RCEP work which uses a contraction and convergence methodology. Contraction and convergence is an international policy framework for dealing with global climate change developed by the London-based Global Commons Institute."

# **DEFRA on C&C**



UK building industry leaders wrote to Mr Blair saying this frameworkbased market is contraction and convergence. "We highlight the point made by the Corporate Leaders Group on Climate Change that gettingthe right global climate change framework in place is the most urgent action. The Contraction and Convergence Framework, accepted by the UN and by the Royal Commission on Environmental Pollution (amongst others) could well provide a fair structure for the engagement of all nations." CIBSE and ICE on C&C



tearfund.org

"The leading model advocating equal per capita emissions rights globally is 'Contraction and Convergence', to which all equity frameworks and proposals owe their existence." **Christian Aid** 

Tearfund wrote to Mr Blair saying this framework-based market is contraction and convergence. "The C&C framework is global, long-term, effective, and, importantly, equitable, without which it would stand no chance of being agreed. From the outset developing countries have a guarantee of equitable allocations and assurance as to when this would happen." **TEARFUND** on C&C

Contraction & Convergence (C&C) provides a simple framework for globally allocating the right to emit carbon in a way that is consistent with the physical constraints of the biosphere. The approach rests on two simple principles contraction: reducing humanity's emissions to a rate that the biosphere can absorb convergence: distributing total emissions so that each person ultimately gets the same portion of the 'global budget'. The extension of C&C to all demands on the biosphere is referred to as Shrink & Share. Jonathon Loh GFN - WWF on C&C

"To minimise the danger of global temperature rises exceeding 2°C, a level considered dangerous, a concentration of no more than 400ppm of CO2 in the atmosphere is recommended [Byers Report] . . . . and the EU's burden of responsibility to meet this science-based cap should be apportioned on the basis of equal global rights to carbon consumption." **Greenpeace on Byers Report** 

"A recommendation in the Byers report is to build on the global climate change framework of both the UN Framework convention on climate change. It refers to a new basis of equity and common, but differentiated, responsibilities. We need environmental equity with a cap and trade programme. Contraction and convergence is the name that we must give to it. We must link that battle with the battle against poverty." Colin Challen MP - Byers Report is C&C



"Thanks very much for passing on the very nice animation of C&C and risk. One of the things we will be looking at in my newly formed group here at Victoria University in Wellington is burden sharing issues, so the new work on C&C in the UK is of interest to me." Martin Manning IPCC Technical Support Unit WG1





"The commission might have added that contraction and convergence is comprehensive, scientifically based and equitable, unlike the Kyoto Protocol, and that contraction and convergence meets every single objection raised by the United States to Kyoto."

# Lord Bishop of Hereford

Aubrey Meyer has done an amazing job and has shown extraordinary persistence and ingenuity in working out a scheme of this kind, and I very much admire him for it. Above all he's laid out a kind of intellectual and legal framework which is what you need if you're going to se global arrangements in place, and these global arrangements should I believe be fully reflected in the Bill that is now before UK Parliament to regulate Climate Change. It is not the time for half-measures or quarter measures or fiddling with the problem, it's important to lay out the principles and then see how they should best be interpreted to give effect to a common human problem.

# Sir Crispin Tickell Director of the Policy Foresight Programme James Martin Institute Oxford University

Contraction and Convergence includes the identification of a fixed level for stabilisation of greenhouse gas concentrations, and comprehensive global participation. Any framework that incorporates long term targets can offer countries greater certainty about their national targets and provide a clear signal to allow business to plan ahead and help drive investment in new and better technologies.

# Number 10 Downing Street Website

"To make sense of our own actions we need to have an overall direction; contraction and convergence provides that direction." Sunand Prasad President of RIBA

"Long-term convergence of per capita emission rates is an important and equitable principle that should be seriously considered in the context of international climate change negotiations."

# Prime Minister Gordon Brown and Indian Government on C&C

Any framework which involves radical emission reductions would in practice resemble the Contraction and Convergence approach advocated by the Global Commons Institute. Indeed, in terms of domestic policy aims, the UK Government has already implicitly accepted this approach in adopting the 60% carbon reduction target for 2050; and it is therefore inconsistent not to adopt such an approach internationally. We do not see any credible alternative and none was suggested in evidence to our inquiry. We therefore recommend that the UK Government should formally adopt and promote Contraction and Convergence as the basis for future international agreements to reduce emissions.

# Environmental Audit Committee, UK House of Commons 4th Report "The International Challeng of Climate Change"

"My colleagues and I at the Royal Commission on Environmental Pollution would like to express our thanks to you and GCI for your remarkable pioneering work in establishing Contraction and Convergence as it is the basis upon which so much of our own work has been established."

# Sir Tom Blundell; Chairman, RCEP

"Contraction and Convergence is the approach with the most merits. It is the buzz phrase now on the negotiator's lips."

# Sir David King; "The Hot Topic"









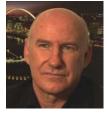
























C&C represents a far greater departure from business as usual than does Kyoto. It is strong medicine for a dire malaise, and as with all strong medicine there are potential side effects. One is that the scheme might eventually do away with world poverty and the north-south divide. Not all aspects of the proposal should displease the conservatives, for by including every human being in existence under its umbrella it obliterates concern about 'free riders' in the developing world that exists under Kyoto.

# 2006 Tim Flannery Author of The Weather Makers

When I was RIBA President we looked at Kyoto and saving 60% by 2050 looked a reasonable start. But the thing that attracted about Contraction and Convergence or C&C was that it looked at the global dimension and what is a 'fair share' of carbon emissions for your country. C&C gives a framework within which to address that. We're comfortable supporting C&C and Aubrey Meyer.

# **Jack Pringle Former President of RIBA**

The fundamental attraction of Contraction and Convergence to me is that it's logically based. It's not based on essentially market issues and arbitrary decisions about how many tons of CO2 permits are going to be allowed. It also doesn't have the risk in my view of one of the real issues with trading that some of the poorer nations and poorer peoples of the world will mortgage their future on a futures market of trading permits.

# **Prof Paul Jowitt President Elect ICE**

"We need to go to the United Nations and need to say both to our own citizens, our own communities and global communities through the United Nations, C&C is the only real way forward to ensure a healthy future."

#### Angela Mawle CEO Public Health Association

"C&C is an excellent virtuous cycle policy tool. There are many benefits to our wellbeing of adopting it. Articulating these benefits, health and other professional groups will offer the hope and inspiration necessary to counter global warming, and so act in accordance with our obligations."

# **Robin Stott Chair Climate and Health Council**

"The C&C framework is very powerful as it addresses two main issues; one is the scientific basis and the rigour, and the other is our intuitive feeling about the moral needs of our community. Scientifically and in terms of equity it gives us targets, timescale and a transparent fairness that through the convergence enables us to leave our children something better than we have now."

# Lorna Walker CABE Commissioner

We can empower the UN to deliver C&C as a global policy. As climate change is the greatest threat to mankind, what better vehicle through which to get the UN pulling together again. We need to get our own politicians to press our own governments to do this. We need to get our own government to press Europe to do this. We need to use our formidable clout as Europe to get it delivered by the UN. The great thing about C&C is that it offers the prospect that if you're clever and if you really get to it, you can make this work for you, not just for the world, but for you individually and as a country.

# Jon Snow Channel Four TV News

The benefits of the C&C approach in three words are simplicity, economics and international. With a simple international structure, C&C makes economics kick in which is absolutely fundamental to getting the biggest infrastructural change in human history.

# Professor Michael Mainelli Director Z/Yen

# 11. Insurance industry views of C&C

http://www.gci.org.uk/Animations/BENN\_C&C\_Animation.exe

"This animation of C&C and risk is brilliant. The Kyoto Protocol is having negligible effect. If successful, Kyoto will result in a slowdown in the rise of global temperatures by 0.02C to 0.28C. That isn't going to help a great deal and we must decide what comes after Kyoto. It has to have the US, India and China on board. The best hope is a system called contraction and convergence, which works on the premise that everyone on the planet has the right to produce the same amount of greenhouse gas. A level is set for the planet and it is divided by the number of people, so that each country knows how much it can emit per head of population. The overall level is then brought down by agreement." Bill McGuire

Director Benfield Hazard Centre, UCL

"Even if we do not know the speed or severity of feedback effects, we must consider the probabilities of disastrous acceleration in climate change within very short timescales. Risk assessment is the core activity of the insurance industry, the biggest industry in the world. Assessment of risk must fully include feedback effects. Insurers are the leading experts in risk and risk modeling. C&C demonstrates how this can be done. C&C already has a high profile with insurers. Governments need to listen to the insurance industry and make C&C central to government policy around the world. From a risk management point of view, C&C produces an important assessment of the risks we face from human-induced runaway climate change and how to frame a response at the policy level."

Prof David Crichton, Benfield Hazard Centre UCL

"C&C is so open and transparent. Within the insurance sector it is recognised by CEOs who know they need a long-term global framework within which they can assess their risk. Without C&C they're stuck with a guesswork approach. A stable insurance industry is essential for a stable economy and a stable financial sector. Insurance needs a long term global framework so it can plan for the future. C&C will help bring this about. It needs to be adopted at the highest level, from the UN down through every business sector."

Dr JULIAN SALT Director of Climate Solutions

"Aubrey Meyer's insight into the problem of mitigation of climate change bears the true hallmark of genius: it is simple and robust. His "Contraction and Convergence" model provides a transparent framework that incorporates the clear objective of a safe global level of greenhouse gases, and allocates the responsibility for achieving this internationally with the irresistible logic of equal shares. At the same time, the model recognises the practical need for an adjustment period to permit nations to conform to the new logic and prepare for a climate-friendly economy. It is no doctrinaire solution, but a brilliantly pragmatic and elegant solution." Dr Andrew Dlugolecki

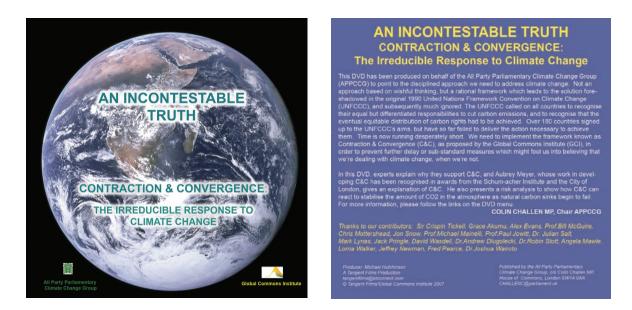
Advisory Board Director, Carbon Disclosure Project Adviser on Climate Change to UNEP Finance Sector Initiative

> CONTACT DETAILS: Global Commons Institute

Aubrey Meyer Director GCI 37 Ravenswood Road LONDON E17 9LY e-mail aubrey.meyer@btinternet.com www.gci.org.uk

## ENQUIRIES ABOUT CARBON COUNTDOWN

Terry O'Connell Director Corporate Relations GCI Phone 0208 946 7045 e-mail terry.oconnell@blueyonder.co.uk



A DVD commissioned by the UK All Party Parliamentary Group on Climate Change presenting Contraction and Convergence has been distributed to all UK MPs and Peers. It is endorsed by numerous eminent spokespersons who are interviewed at length on the DVD.

Copies can be obtained by written request to GCI aubrey.meyer [at] btinternet. com

Alternatively, as a large file interview material is retrievable at this link: www.gci.org.uk/images/Contraction\_and\_Convergence\_Challen\_et\_al.mpg

The DVD also includes a heuristic animation of Contraction and Convergence for a risk analysis of different rates of sink-failure endorsed by prominent industry persons. This is a large file [overnight download] and is retrievable at this link: www.gci.org.uk/images/Contraction\_and\_Convergence\_Risk\_Analysis\_Sink\_Fail-ure.mpg

A context animation the arguments, presented at the Royal Institute of British Architects [RIBA] international conference in Venice last October, is here: http://www.gci.org.uk/images/Final\_presentation.exe or http://www.gci.org.uk/images/CandC\_model\_context\_animation.swf [Note: - touch buttons to advances \*within\* scenes & logos to \*between\* scenes].

GCI's definition statement for C&C is here: http://www.gci.org.uk/briefings/ICE.pdf

General referencing for the C&C provenance is here: http://www.gci.org.uk/links/detail.pdf

A concept/context map of C&C comparing three rates of change for

[a] Contraction and Concentrations

[b] Contraction and Convergence

[c] Benefits of Growth versus Damages from Climate

[d] Contraction and Conversion

is here: - http://www.gci.org.uk/images/Deepat\_Bonn.pdf

# Some C&C GCI Links

# **Publications**

http://www.gci.org.uk/briefings/zew.pdf [Springer Verlag] http://www.gci.org.uk/briefings/UNFCCC&C\_A\_Brief\_History\_to1998.pdf [GLOBE] http://www.gci.org.uk/Book/Surviving\_Climate\_Change.pdf [PLUTO] http://www.schumacher.org.uk/schumacher\_b5\_climate\_change.htm [Schumacher]

# **Briefings**

http://www.gci.org.uk/briefings/ICE.pdf http://www.gci.org.uk/Endorsements/UNEPFI5f.pdf http://www.gci.org.uk/briefings/CPI.pdf www.gci.org.uk/briefings/RSA\_Occasional\_Paper.pdf

# **Articles/Interviews**

http://www.gci.org.uk/articles/LEXUS.pdf http://www.gci.org.uk/articles/React.pdf http://www.gci.org.uk/articles/New\_Scientist\_Interview.pdf http://www.gci.org.uk/articles/Green\_Futures\_CandC.pdf http://www.gci.org.uk/articles/BMJ\_Stott.pdf http://www.gci.org.uk/articles/Actuary\_McGuire.pdf http://www.gci.org.uk/articles/British\_Medical\_Journal\_22\_December\_2007.pdf http://www.gci.org.uk/articles/Argus\_C&C\_Interview.pdf

**COP-3 1997 UNFCCC [Transcript]** - C&C nearly agreed in 1997 http://www.gci.org.uk/temp/COP3\_Transcript.pdf http://www.gci.org.uk/briefings/AFRICA\_GROUP.pdf

The United Nations Framework Convention on Climate Change (UNFCCC) administration itself has said since 2003 that: - "Contraction and Convergence is inevitably required to achieve the objective of the convention": www.gci.org.uk/UNFCCC/C&C\_Janos\_Pasztor\_UNFCCC.pdf

# A C&C Booklet 13 languages from COP-11 12/2005: -

http://www.gci.org.uk/briefings/MONTREAL.pdf

# Archives covering twenty year history of this campaign: -

http://www.gci.org.uk/Archive/Mega\_Doc\_1989\_2004.pdf http://www.gci.org.uk/Archive/All\_2000\_2007\_reduced\_file\_size.pdf

The C&C framework is supported by manifesto commitments from the Welsh Nationalists [Plaid Cymru] and the Scottish Nationalists and the Liberal Democrats and the Greens and the Respect Party.

www.gci.org.uk/presentations/RSA\_C&C\_G-8\_Quotes.pdf

Many individual UK Labour Party MPs advocate C&C, some Conservative MPs do too. http://edmi.parliament.uk/EDMi/EDMDetails.aspx?EDMID=29500&SESSION=875 http://edmi.parliament.uk/EDMi/EDMDetails.aspx?EDMID=27350&SESSION=873 http://edmi.parliament.uk/EDMi/EDMDetails.aspx?EDMID=27080&SESSION=873

An issue to some is that C&C merely describes generically an 'outcome' of many future aspirational phases of the Kyoto Protocol. This is what the corporations collectively call `an inadequate patchwork', see slides 20/1 here: - http://www.gci.org.uk/presentations/RSA\_C&C\_G-8\_Quotes.pdf

To cure this very randomness, C&C formally means the structure a of full-term, concentration-target-based framework endowed by GCI from the outset, as accepted for example by DEFRA: -

www.gci.org.uk/correspondence/Meacher\_15\_11\_02.pdf

and in 2004 by the House of Commons Environmental Audit Committee and result: - www.gci.org.uk/correspondence/EAC\_response\_GCI\_300904.pdf

House of Commons Environmental Audit Committee and result 2004: http://www.gci.org.uk/correspondence/EAC\_response\_GCI\_300904.pdf http://www.gci.org.uk/briefings/EAC\_Final\_C&C.pdf

**C&C briefing to All-Party enquiry into climate-consensus and result May 2006:** http://www.gci.org.uk/briefings/APGCCC\_Evidence\_single\_A4\_pages.pdf http://www.gci.org.uk/briefings/Consensus\_Report.pdf

The UK House of Commons All Party Parliamentary Group on Climate Change [APPGCC] adopted C&C. A DVD commissioned by the Group presenting Contraction & Convergence was distributed to all UK MPs and Peers. Eminent spokespersons interviewed on the DVD.

http://www.gci.org.uk/images/Contraction\_and\_Convergence\_Challen\_et\_al.mpg

**C&C** Promotional material is here: -

http://www.gci.org.uk/Movies/Contraction\_and\_Convergence\_Promo.mpg

# Key C&C Animation with coupled models/sink-failure here: -

http://www.gci.org.uk/Animations/BENN\_C&C\_Animation.exe

# **COMMENTS**

# 2002 Michael Meacher, the UK Environment Minister

*"if ever there was an initiative that deserved recognition and support, it is the brilliant and relentless campaign waged by this fiercely independent, creative and apparently tireless individual."* 

# **2003 The UN Climate Convention Secretariat**

"Achieving the goal of the climate treaty, inevitably requires contraction and convergence".

# 2003 The Archbishop of Canterbury

"C&C appears utopian only if we refuse to contemplate the alternatives honestly."

# 2003 Sir John Houghton Royal Commission Environmental Pollution

"Since the formulation of 'Contraction and Convergence', Aubrey Meyer has tirelessly and selflessly argued for and promoted it with great energy and tenacity in scientific, economic and political fora. Admiration is frequently expressed regarding its elegance and simple logic and it has been widely accepted by policy makers and by NGOs as a basis that should underlie the next stage of policy formulation. There is no other proposal in play that meets so many of the required principles and criteria or that has any real chance of succeeding. It is bound to be strongly influential in the crucial round of international negotiations in the FCCC that is about to begin. The personal dedication of Aubrey Meyer, born of a deep concern for global humanity and its future, is what has brought the Contraction and Convergence proposal to the influential position it holds today."

# In 2003 the Independent on Sunday a UK broadsheet

[Meyer is] "one of the three most important people in the world."

# In 2005 a UK Journal the New Statesman

[Meyer is] "one of the ten people in the world most likely to change it."

# 2007 UNITAR Seminar

[Meyer is] "arguably the world's leading carbon strategist" and "the Mandela of Climate Change" for demonstrating the end of global apartheid.

# 2007 the UK All Party Parliamentary Group on Climate Change

commissioned a DVD from Meyer to demonstrate the C&C argument and support for it. Called '*The Incontestable Truth'* this has been circulated very widely in and beyond the UK. Commendations for Meyer and his work establishing C&C were included in this production.

# 2007 Sir Crispin Tickell, former UN Ambassador

and now the Director of the Policy Foresight Programme James Martin Institute Oxford University: "Aubrey Meyer has done an amazing job and shown extraordinary persistence and ingenuity in working out a scheme of this kind, and I very much admire him for it. Above all he's laid out a kind of intellectual and legal framework which is what you need if you're going to set global arrangements in place."

# 2007 Dr. Julian Salt Director of Climate Solutions

"Aubrey Meyer is the most courageous and brilliant climate researcher I have ever met. He is willing to say what other's merely think. He is quite fearless of any audience and the most eloquent of speaker's because he knows that ultimately the concept of Contraction and Convergence [C&C] is indestructible and will in the fullness of time be adopted in some form by the UNFCCC.

He has developed his arguments over twenty years with a minimum of funding and has refused to compromise his position in any way for financial gain or glory. He is tireless in his research and quest to understand every nuance of the climate debate. It has been an honour for me to have known and worked with such a brilliant mind and such an honest person as Aubrey. He has much support from very well placed and respectable people and deserves global recognition for his work. He is quite simply a modern-day genius who will one day be respected for his vision and beliefs.

He should be considered for the Nobel Peace prize as his efforts ultimately will save the planet from the ravages of man-induced climate change."

# **AWARDS**

# Andrew Lees Memorial Award - 1998

"Aubrey Meyer, almost single-handedly and with minimal resources, has made an extraordinary impact on the negotiations on the Climate Change Treaty, one of the most important of our time, through his campaign for a goal of equal per capita emissions, which is now official negotiating position of many governments, and is gaining acceptance in developed and developing countries alike."

# The Schumacher Award - 2000

"Aubrey Meyer set up his Global Commons Institute (GCI) in 1990, with minimal resources, to campaign to bring the threat of global warming to the attention of the public and to policy makers. For over ten years, with great determination and meticulous attention to scientific detail, he has presented his case counteracting the arguments put forward by corporate interests. Of special significance is his formulation of 'contraction and convergence', a strategy for fairly sharing the rights to emit carbon dioxide worldwide. This is increasingly recognised as the most logical and effective way of preventing climatic catastrophe while promoting justice and equity. It has made an extraordinary impact on the Climate Change Treaty negotiations."

# A Findhorn Fellowship 2004

"Aubrey Meyer is a professional violinist who has largely bracketed his music career to address the global challenge of climate change. Having attended the first UN meetings on the subject in the early 90's, he has since fully engaged with the issue and developed the 'Contraction and Convergence' model as an antidote to it. He created and directs the Global Commons Institute in London as a vehicle to advance his formula to virtually all who will listen. He presented it here at the Restore the Earth conference in 2002. Its genius lies in its capacity prospectively to reduce greenhouse emissions by the 60-80% that the UN IPCC (International Panel on Climate Change) say is required to minimise the likely devastating effects of global warming. His views are increasingly endorsed by prominent members of the British establishment. I hope you join me in welcoming Aubrey to the Fellowship and in supporting his remarkable, indeed heroic, initiative. Aubrey Meyer is arguably the world's foremost carbon strategist and to global warming what Michael Moore is to the US electoral saga - a delightful maverick who just might 'save the day'."

# City of London Life-Time's Achievement Award - 2005

"From the worlds of business, academia, politics and activism, Aubrey Meyer has made the greatest contribution to the understanding and combating of climate change having led strategic debate or policy formation. 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."

# Honorary Fellow of Royal Institute of British Architects - 2007

For his challenging and inspirational promotion of environmental issues, in particular his development of the concept of Contraction and Convergence. Architects adopted C&C at RIBA Council in 2006 and asked Aubrey to present C&C at their annual conference in October. There, RIBA's Chairman declared climate change as the dominant agenda for the 21st Century, called for C&C targets and committed RIBA to campaigning for C&C." He was an inspirational speaker at the RIBA's 2006 Annual Conference in Venice and reported the event as follows; "Meyer, formerly a professional musician, started with a virtuoso performance that was simultaneously moving, terrifying and informative. He played the violin theme to Schindler's List to images of the environmental holocaust he went on to argue that we face."

# The UNEP FI Global Roundtable Financial Leadership Award - 2007

UNEP FI for the first time recognized executives within the financial services who have contributed in a significant manner to the development of financial ideas, innovative products, institutional change and or the carbon markets themselves through the UNEP FI Carbon Leadership Award. Four executive awards were given for each category of financial services: Banking, Insurance/ Reinsurance, Asset Management/Private Banking and Pension Funds. In addition, an award was given for a representative from civil society who had worked towards the same end. Award winners were selected from a large number of entries by a small group of UNEP FI's long term climate change advisors. The civil society category award for the most impressive commitment and innovative thinking around climate change and the financial sector with the UNEP FI Carbon Leadership Award went to Aubrey Meyer of the Global Commons Institute.

# C&C AT THE CLIMAX OF THE KYOTO [COP3] UN CLIMATE NEGOTIATION, 10 12 1997

For full transcript of final COP-3 Kyoto negotiation, see: http://www.gci.org.uk/temp/COP3\_Transcript.pdf



# THE AFRICA GROUP [Rungano Karimanzira]:

"..... we do support the amendment that is proposed by the distinguished delegation from India, and just to emphasise the point of the issues that still need a lot of clarification, would like to propose in that paragraph the inclusion, after "entitlements" that is the proposal by the delegation of India, the following wording.

After "entitlements, the global ceiling date and time for Contraction and Convergence of global emissions because we do think that you cannot talk about trading if there are not entitlements, also there is a question of Contraction and Convergence of global emissions that comes into play when you talk about the issue of equity . . . . . "

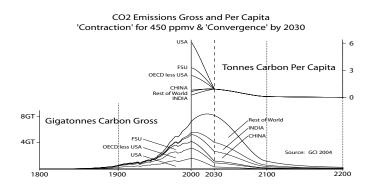
# CHAIRMAN [Raul Estrada Oyuela]:

"I thank you very much. ..... May I ask again the distinguished delegate of the USA if they have another suggestion to propose in connection with the proposals made by the distinguished delegate of India . . . . he does . . . . "



# UNITED STATES OF AMERICA [Jonathon Pershing]:

".... It does seem to us that the proposals by for example India and perhaps by others who speak to Contraction and Convergence are elements for the future, elements perhaps for a next agreement that we may ultimately all seek to engage in ....."



For details of widespread support for C&C, see: http://www.gci.org.uk/briefings/EAC\_document\_3.pdf http://www.gci.org.uk/events/City\_of\_London\_Award\_Sheet\_03.pdf