Nicholas Stern's Great U-Turn on C&C

"No" [2006]

"C&C is an assertion without support."

[2008] **"Yes"**

"The simplicity of C&C is pragmatic."

INTRODUCTION

GCI's initial contributions to the 'Stern-Review' were in 2005. They were the two polite and constructive letters on pages 4 & 5 of this document. The resource materials to which these letters refer are reproduced here in full from page 14 to page 96.

The Review would be published in 2006 [the one he now says he got so wrong] but why when this happened Nicholas Stern chose to ignore all this input [quite uniquely, the rest was all acknowledged] and instead just to denouce C&C in his Review and to deny a successful campaign of 17 years, remains a complete mystery.

His subsequent denunciation of C&C as 'spectucular inequity' and then as'rights-to-kill' in the American Economics Review is evidence of a growing pathology that was taken to the extreme in his interview on-camera with Colin Challen MP in Poznan at COP-14 in 2008 [page 12]. Nicholas Stern would certainly have known that Colin had already presented a C&C Private Members Bill in the UK House of Commons [pages 66 to 69 of this document].

It has been suggested that all Stern was really doing in his Whitehall games of Snakes and Ladders was to try and get revenge for being forced under legal pressure from Cambridge University Press [CUP] [see page 5 of this document] and the Government, properly to source to GCI the C&C that he decided [initially] to denounce in what is now the famous 2006 'Review that he himself has now just denounced.

Others have suggested that it shows the lingering influence of those Whitehall Civil Servants who got so roundly rebuffed over the Value of Life struggle in IPCC Second Assessment in 1995. [They're still there and this is water not yet fully under the bridge perhaps].

These days Nicholas U-Stern just goes on and on . . . . His latest episode [in the Guardian Jan 2013 - he rivals George Monbiot for U Turns now] is to recant saying 'how wrong he was' . . . . about his review . . . . 'Ain't that the truth' . . . . while he ignored GCI's original messages on Urgency and what toi do about it, could not have been clearer.

What can one do but just watch the shrivielling effect and shrink at the march of 'great men' and their tiny minds.

However, in 2008 the UK Climate Act would clearly be based on C&C.
It would be defended as such by Adair Turner Chair of the UK Climate Change Committee and many by others.

http://www.gci.org.uk/climateact.html

GCI

5th December 2005

Sir Nicholas Stern
Stern Review of Climate Change
2nd Floor, Room 35/36
HM Treasury
1 Horse Guards Road
London SW1A 2HQ

Dear Sir Nicholas

Contraction and Convergence [C&C] - GCI Contribution to your Review

Thank you for conducting this enquiry. The implications for energy demand and emissions of the prospects for economic growth over the coming decades are serious.

GCI has addressed this problem since 1990. Our primary emphasis has been the economic, social and environmental consequences of climate change in both developed and developing countries. The risks of increased climate volatility and major irreversible impacts, and the climatic interactions, as well as possible actions to adapt to the changing climate and the costs associated with them, are a function of the rate of damages - albeit from a lower base - already exceeding the rate of growth.

GCI believes that the framework of Contraction and Convergence [C&C] makes it possible - indeed is the necessary prerequisite - to address this death-trap. The impact and effectiveness of national and international actions reducing net emissions in a cost-effective way while promoting a dynamic, equitable and sustainable global economy, including distributional effects and impacts on incentives for investment in cleaner technologies is not possible without a C&C agreement.

The Prime Minister remarked recently: -

> *"We urgently need a framework, with the necessary targets, sensitively and intelligently applied over the right timeframe that takes us beyond 2012. It can only happen if the US, China and India join with Europe, Japan and others to create such a framework. Failure will mean not only increasing the damage to the environment but in a world of greater competition for carbon fuel, real pressure on energy supply and energy prices. Yet such an agreement cannot materialize without the major nations of the world agreeing an approach that is fair and balanced, sharing the most advanced science and technology to tackle carbon emissions; in other words, a just settlement as well as an effective one."*

He is correct and C&C answers this call. The position is full-term consitutional. It has withstood fifteen years of criticism to become now the most widely quoted and supported position in the debate.

C&C has been been formally advocated by the Africa Group since August 1997. This was reaffirmed by the Government of Kenya at the UNFCCC COP-11 in Montreal.

Enclosed is our submission to COP-11. I ask that your review focus on pages 12 - 15. Kenya's presentation at COP-11 was entitled, "The Rhino is Charging". The global average rate of damages from climate change is at least twice the global average rate of Economic Growth. This is the 'Rhino' that exercises all of us.

I hope you will find this useful and that the arguments inform the outcome of your review.

With best wishes

Yours sincerely

Aubrey Meyer

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GCI

18th February 2006

Sir Nicholas Stern
Stern Review of Climate Change
2nd Floor, Room 35/36
HM Treasury
1 Horse Guards Road
London SW1A 2HQ

Dear Sir Nicholas

Contraction & Convergence [C&C] - GCI 2nd Contribution to your Review

Again, thank you for conducting this enquiry. I hope it is progressing well especially in the light of evidence now coming in demonstrating that the problem is recognized as much more serious than has been previously acknowledged.

I enclose with this letter to you a second contribution to the review entitled: -

"Using C&C and the C&C Bill to organise

'Doing Enough, Soon Enough' to Avoid Dangerous Climate Change."

This paper provides details about the trend analysis/prognosis that was the subject of GCI's presentation or C&C at the Royal Society of Arts last week.

GCI affirms as strongly as ever that the framework of Contraction and Convergence [C&C] keeps it possible to address what is on present trends unaltered a global climate death-trap.

I enclose some of the slides from this event. I also record that a Chief Executive from Rio Tinto Zinc who attended RSA event, made clear that they are with the call for the concentration-target-based international framework as called for by the Prime Minister [and see quotes on the C&C support slides enclosed].

> *"We urgently need a framework, with the necessary targets, sensitively and intelligently applied over the right timeframe that takes us beyond 2012. It can only happen if the US, China and India join with Europe, Japan and others to create such a framework. Failure will mean not only increasing the damage to the environment but in a world of greater competition for carbon fuel, real pressure on energy supply and energy prices. Yet such an agreement cannot materialize without the major nations of the world agreeing an approach that is fair and balanced, sharing the most advanced science and technology to tackle carbon emissions; in other words, a just settlement as well as an effective one."*

"Doing Enough, Soon Enough' to Avoid Dangerous Climate Change" is now the name of the game.

The international quarrel trading blame for the past against sharing what's left of the future has to resolved to have any chance of winning this game. The C&C principle can resolve this in practice by subjecting it to the discipline of its concentration-target [or science-based] rationale.

I urge you to uphold this principle in your review. As you can see it has very wide support institutionally as well as in civil society and the faith sector.

With best wishes

Yours sincerely

Aubrey Meyer

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Aubrey Meyer
Global Commons Institute (GCI)
37 Ravenswood Road
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E17 9LY

25th June 2008

Dear Mr Meyer,

Re: The Economics of Climate Change: The Stern Review (9780521700801)

Further to our recent communication on the issue of The Stern Review and unattributed references to the Global Commons Institute (GCI) and the principle of Contraction and Convergence, I am now writing to formally confirm the steps Cambridge University Press has agreed to take in connection with this matter.

Cambridge is happy to publish the following attribution at the next reprinting of The Stern Review:

Source: Contraction and Convergence ™ (C&C) is the science-based, global climate-policy framework proposed to the UN since 1990 by the Global Commons Institute (GCI). www.gci.org.uk/briefings/ICE.pdf

This attribution will appear on page 47 of The Stern Review (which we believe is where the first reference to the C&C principle arises).

Cambridge has also communicated the above attribution to the authoring team of The Stern Review and they have agreed in principle to include the same attribution on the government website from which the Report can be accessed (http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_Report.cfm), although beyond passing the changes to the authoring team, the actual additions to the website are beyond Cambridge's control.

I hope that this belated attribution is satisfactory. If you have any further queries please do not hesitate to contact me.

Yours sincerely,

Melissa Macbeth
Intellectual Property Controller
mmacbeth@cambridge.org

Until pressured by Cambridge University Press over 2007/8, Nicholas Stern failed to properly acknowledge the "Contraction and Convergence" proposals from GCI and the source for these [see below], though these proposals were formally submitted to his enquiry - See briefing on Treasury website at:
- www.hm-treasury.gov.uk/media/5/0/GCI_Briefing_C&C.pdf

On page 47 and onwards, Nicholas Stern renames "C&C" as "contract and converge" and then attacks [sourceless] *"it"* as *"an assertion and and not an argument'"*[concluding that] *"it is unlikely to get support".*

Later in the report he compares C&C [GCI via Hohne [who does acknowledge GCI, though stern removes this]] to four other references provided by Hohne.

This year [08] he changed his assertions to saying;

"the pragmatic principle of equity would require an equalisation of per capita emissions by then [2050]" whilst also informing the press, **"***we badly underestimated the degree of damages and the risks of climate change. All of the links in the chain are on average worse than we thought a couple of years ago."*

NICHOLAS STERN
THE ECONOMICS OF CLIMATE CHANGE [2006]
PART I: Climate Change – Our Approach

2A Ethical Frameworks and Intertemporal Equity/Climate change p 47

"The notions of the right to climate protection or climate security of future generations and of shared responsibilities in a common world can be combined to assert that, collectively, we have the right only to emit some very small amount of GHGs, equal for all, and that no-one has the right to emit beyond that level without incurring the duty to compensate. We are therefore obliged to pay for the right to emit above that common level.

This can be seen as one argument in favour of the 'contract and converge' proposition, whereby 'large emitters' should contract emissions and all individuals in the world should either converge to a common (low) level or pay for the excess (and those below that level could sell rights).

There are problems with this approach, however. One is that this right, while it might seem natural to some, is essentially asserted. It is not clear why a common humanity in a shared world automatically implies that there are equal rights to emit GHGs (however low). Equality of rights, for example to basic education and health, or to common treatment in voting, can be related to notions of capabilities, empowerment, or the ability to participate in a society.

Further, they have very powerful consequences in terms of law, policy and structures of society. How does the 'right to emit' stand in relation to these rights? Rights are of great importance in ethics but they should be argued rather than merely asserted.

More pragmatically, as we shall examine in Part VI of this report, action on climate change requires international agreement and this is not a proposition likely to gain the approval necessary for it to be widely adopted."

The C&C Briefing submitted to the Stern Review, appears at the end of this document [pp 21-24]. At the time, it and related submissions were not acknowledged. When I enquired if they had been received I was told there was 'no record'.

The briefing was finally put on the treasury website after I had to re-deliver it by hand asking for a signed receipt: -

http://www.hm-treasury.gov.uk/media/5/0/GCI_Briefing_C&C.pdf

C&C *"an assertion . . . unlikely to get support."*

The Stern Report summarily ignored this C&C contribution, the detailed references and the provenance.

A vernacular C&C argument ["contract and converge" unsourced] was introduced [on page 47 of his report] and attacked for being merely *"an assertion"* and *"unlikely to get support."*

C&C - *"Too Difficult to get Your Head Around"*

Soon after the launch of the Report, Stern explained it differently to an audience at LSE, where he was taking up tenure.

A student askid him, *"when is the political tipping point in favour of "Contraction and Convergence?"* To the astonishment of many, Stern said it was too difficult to get your head around.

> *"Now the last question was about the political tipping point coupled with the idea of "Contraction and Convergence" (C&C). For those of you who don't know the jargon, you may not know what political tipping point means. It's actually quite a deep concept.*
>
> *But on "Contraction and Convergence" it means that if you go into carbon-trading and different nations have different allowances for emissions, the idea of "Contraction and Convergence" (C&C) is that you give everybody the same kind of emissions allowance per capita, regardless of how much they were emitting. So those poor people who emit less can sell some of their allowance to rich countries that emit more. And that's the story of "Contraction and Convergence and it does have obviously strong ethical attraction to it.* ***It is based on a proposition on rights which is a bit tricky to get your head around - we all have the same rights to emit to some level or other. That's a difficult one to understand. I mean you could argue that we have no right to emit. Or you could argue that have some right to emit; you sort get into quite difficult conceptual territory.*** *But the motivation behind the question . . . . that the story of trading . . .* [which requires emissions rights by definition . . . .] *But whether you translate your equity concerns specifically just that one way through, "Contraction and Convergence" (C&C) seems to me to be an open question and how you implement it is open to question."*

This reply again was C&C rejectionist reasoning and was reiterated in the UNDP's "Human Development Report" which confusingly also claimed to be **supporting** C&C [see pp 12-15]

Margins of Error on curing, *"The greatest market failure in history."*

The Stern Review didn't question this to any conclusion. It merely and memorably rehearsed the difference between two and three repeats of the total industrial revolutionary emissions output [213,000,000,000 tonnes carbon times 2 or times 3] as a margin of error on atmospheric ghg concentrations in addressing the cure for, *"the greatest market failure in history."*

During the course of the years from then until now Nicholas Stern has: -

> [1] co-signed a statement with 15 Nobel Laureates endorsing: - *"The Principle of carbon justice, i.e. striving for a long-term convergence to equal-per-capita emissions rights accomplished through a medium-term multi-stage approach accounting for differentiated national capacities."*

http://lists.topica.com/lists/GCN@igc.topica.com/read/message.html?mid=1721226171&sort=d&start=636

C&C *"a spectacularly weak form of justice."*

[2] shared a platform with UN veteran Nitin Desai at the "Helsinki Process" conference on the 11th of December 2007,. There he denounced C&C as, *"a spectacularly weak form of justice".* [Um so beeindruckter war ich, mit welcher Klarheit er eine unbequeme Wahrheit aussprach: Die von in ihren Reden Merkel implizierte Formel von „Contraction and Convergence", das Konvergieren der Pro-Kopf-Emissionsrechte der Länder in einigen Dekaden (oft wird 2050 genannt), ist kein großzügiges Angebot des Nordens an die Entwicklungsländer. Es ist in der Tat eine *„spektakulär schwache Form von Gerechtigkeit"* (*"a spectacularly weak form of equity"*).

http://lists.topica.com/lists/GCN@igc.topica.com/read/message.html?mid=1721293752&sort=d&start=661

Stern Reverses Position on C&C *"a pragmatic principle of equity."*

On 5th April 2008, Mr Stern completely reversed his view on C&C. At the Progressive Heads of Government Conference he affirmed in favour of C&C as "pragmatic principle": -

> ***"A pragmatic principle of equity would require an equalisation of per capita emissions by then."***

His actual statement read as follows and it was posted on the Downing Street website: -

> *"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 new pro C&C position was immediately endorsed by the Head of UNDP Kemal Dervis,

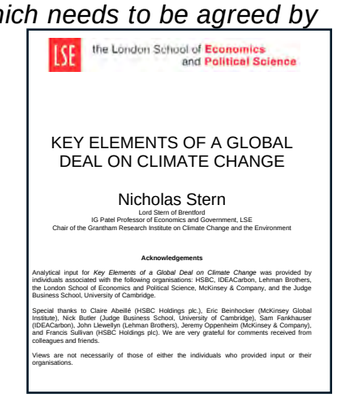
> *" . . . . there is an emerging proposal here which I think is important and helpful, and that is a broad long-term commitment to equal per capita emissions."* [vide King and Gore and WBGU]

http://lists.topica.com/lists/GCN@igc.topica.com/read/message.html?mid=1721425003&sort=d&start=681

April 2008 Stern Publishes Pro 'C&C' in *"Key Elements of a Global Deal"*

The above paper was presented by Stern at the LSE on 30th April 2008. Its declared purpose is:

> *"to support the negotiations of a post-2012 global treaty which needs to be agreed by 2009 and translated into national policy and action plans between 2010-2012. It aims to put forward a coherent set of underlying principles that are consistent with the latest scientific evidence, and which explicitly define options and suggest which are more likely to be suitable."*


the London School of Economics and Political Science

KEY ELEMENTS OF A GLOBAL DEAL ON CLIMATE CHANGE

Nicholas Stern

Lord Stern of Brentford
IG Patel Professor of Economics and Government, LSE
Chair of the Grantham Research Institute on Climate Change and the Environment

Acknowledgements

Analytical input for *Key Elements of a Global Deal on Climate Change* was provided by individuals associated with the following organisations: HSBC, IDEAcarbon, Lehman Brothers, the London School of Economics and Political Science, McKinsey & Company, and the Judge Business School, University of Cambridge.

Special thanks to Claire Abeillé (HSBC Holdings plc.), Eric Beinhocker (McKinsey Global Institute), Nick Butler (Judge Business School, University of Cambridge), Sam Fankhauser (IDEAcarbon), John Llewellyn (Lehman Brothers), Jeremy Oppenheim (McKinsey & Company), and Francis Sullivan (HSBC Holdings plc). We are very grateful for comments received from colleagues and friends.

Views are not necessarily of those of either the individuals who provided input or their organisations.

The underlying principles for the global treaty are stated as:

- *Effectiveness – it must lead to cuts in greenhouse gas (GHG) emissions on the scale required to keep the risks from climate change at acceptable levels;*
- *Efficiency – it must be implemented in the most cost-effective way, with mitigation being undertaken where it is cheapest; and*
- *Equity – it must take account of the fact that it is poor countries that are often hit earliest and hardest, while rich countries have a particular responsibility for past emissions.*

The Reuters report on the LSE launch succinctly summarises Stern's spoken presentation of the Key Elements paper:

- *"Rich countries must commit to cutting carbon emissions by 80 percent by 2050 and developing nations must agree that by 2020 they too will set their own targets.*
- *The only way the world could defeat the climate crisis was by ensuring that global carbon emissions peaked within 15 years, were then halved from 1990 levels to 20 billion tonnes a year by 2050, and cut to 10 billion thereafter.*
- *The emission target was based on the goal of halting the temperature rise to two degrees Celsius above pre-industrial levels.*
- *That in turn meant achieving global average carbon emissions of just two tonnes per head -- 20 billion tonnes divided by the anticipated world population of nine billion people -- from the current average of seven tonnes per head.*
- *Everything flows from the figures. That is the simplicity of the argument. If you buy into stabilisation at 500 parts per million (atmospheric carbon -- equivalent to two degrees rise) the rest is arithmetic."*

May 08 Stern Publishes his Ely Memorial Lecture in the American Economic Review where he says *"Contract & Converge is like Rights to Kill"*

> *"An 80 percent reduction of flows by rich countries by 2050, in the context of a 50 percent reduction overall, is not a target for which rich countries should congratulate themselves warmly as demonstrating a splendidly powerful commitment to equity.*
>
> *And the contract-and-converge argument for some common flow level, or for using such a level as the eventual basis of trading, on the asserted grounds that there are "equal rights to emit or pollute," does not seem to me to have special claim on our attention. [Asserting equal rights to pollute or emit seems to me to have a very shady ethical grounding. Emissions deeply damage and sometimes kill others. Do we have a "right" to do so?] Rather, the target of equalizing by 2050 (allowing for trade) may be seen as being a fairly pragmatic one, on which it might be possible to get agreement, and one that, while only weakly equitable, is a lot less inequitable than some other possibilities, such as less stringent targets for rich countries."*

guardian.co.uk

Friday October 24 2008

Nicholas Stern proposes a global cut in emissions of 50% by 2050, with an 80% cut in the emissions of the developed countries by then. While the principle of the contraction and convergence to world per-capita average of emissions is welcome, proposing it at a rate that is too slow is not. The coupled climate modelling in the fourth and latest IPCC assessment shows that a global cut in emissions of nearly 100% is needed by around 2060 to offset the accelerated rate at which emissions are now accumulating in the atmosphere. We need emissions contraction and convergence globally, but at roughly twice the rate he argues if we are to avoid greenhouse gas concentrations causing "a major climate disaster".

Aubrey Meyer
Global Commons Institute

Contraction and Convergence®

07 11 2008

Dear Mr Stern

Thank you for your letter of the 12th of August.

1. The treasury website appears now to have been corrected on the source of C&C in line with the 5th edition of the CUP report which has also been so corrected: - Source: Contraction and ConvergenceTM (C&C) is the science-based, global climate-policy framework proposed to the UN .since 1990 by the Global Commons Institute (GCI). www.gci,org.uk/briefings/ICE.pdf - www.hm-treasury.gov.uk/d/Chapter_2_Technical_Annex.pdf

2. Thank you for the link to your Ely lecture. Here again however, the reference is as contract-and-converge, rather that Contraction and Convergence, and it is not attributed to GCI. Instead you raises a critque of some notion of C&C that includes assertions about "equal rights to pollute" [see below] which amount to "rights to kill". These are entirely your assertions and certainly not GCI's.

The reference for C&C now given in the CUP edition and on the Treasury website and in the Garnaut Report www.gci,org.uk/briefings/ICE.pdf make no such assertions about equal rights, and Mr Stern's comments are wholly incorrect for asserting this.

It is also quite improper to construct the notion that contract-and-converge [which you now in the CUP and Treasury-based Report do attribute to GCI as "Contraction and Convergence"] perhaps represents "rights to kill". In the light of attributing C&C to GCI eleswhere, this peculiar remark appears to go in the direction of libel. I have used C&C to fight The economics of genocide since 1990. So I would be grateful if you would read GCI's C&C reference now cited by Mr Stern and respond to this request that Mr Stern withdraw the comments and confirm that point to me in writing.

On whatever basis you care to nominate, rights are by definition being created in a 'global carbon market', as you cannot trade what you do not own. C&C presents this dilemma as a framework-based market the first issue for which is a decision regarding a global contraction rate that is fast enough to avoid the death rates associated with a contraction rate that is too slow.

This modelling was done for Minister Hilary Benn based, at his request, on coupled-modelling of contraction rates as published in IPCC AR4 and this link too is in the C&C reference you cite, as: - www.gci.org.uk/Animations/BENN_C&C_Animation.exe

I am surprised to see that you have not paid attention to this and particularly the IPCC modelling. Contraction rates needed for given concentration outcomes are significantly faster than you are suggesting. This is the over-sight that is going to result in the [with-or-without] "rights-to-kill" death-rates that will accompany the scenario that your Ely figures portray - as shown below.

In the context of the Climate Bill which clearly indicates its source origin in the RCEP 2000, the attention accorded to the Stern review is judged in light of the track record that led from 1990 to 2000 and now the bill. Though you only entered the debate with his report in 2006, you have done two significant repositionings since then: - [1] you acknowledged within a year that the issue was much more serious that your report had indicated and [2] that C&C or the equalization of per capita emissions globally was the pragmatic course.

*"An 80 percent reduction of flows by rich countries by 2050, in the context of a 50 percent reduction overall, is not a target for which rich countries should congratulate themselves warmly as demonstrating a splendidly powerful commitment to equity. And the contract-and-converge argument for some common flow level, or for using such a level as the eventual basis of trading, on the asserted grounds that there are "equal rights to emit or pollute," does not seem to me to have special claim on our attention. [*Asserting equal rights to pollute or emit seems to me to have a very shady ethical grounding. Emissions deeply damage and sometimes kill others. Do we have a "right" to do so?*] Rather, the target of equalizing by 2050 (allowing for trade) may be seen as being a fairly pragmatic one, on which it might be possible to get agreement, and one that, while only weakly equitable, is a lot less inequitable than some other possibilities, such as less stringent targets for rich countries."*

So you still appear to believe that you are actually arguing against C&C. Please will you confirm whether that is the case or not and if it is with some more convincing reasoning than has been the case to date.

With kind regards

Aubrey Meyer
GCI

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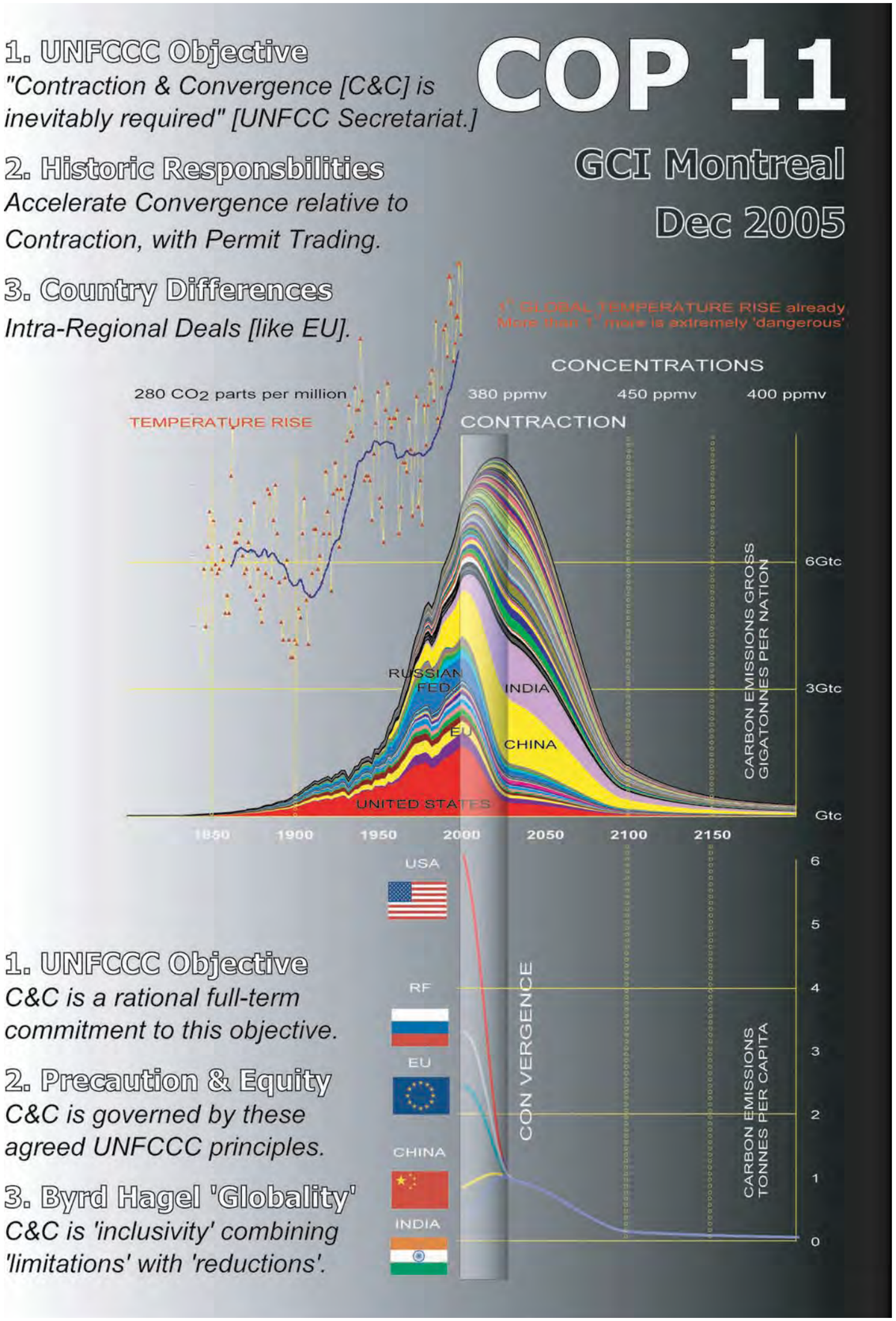
Stern’s response to all this was to resume his attack on C&C at COP14 in POZNAN iun December 2008

Nicholas Stern finally admits 26 01 2013: -

‘*I got it wrong on climate change – it’s far, far worse’*

Author of 2006 review speaks out on danger to economies as planet absorbs less carbon and is ‘on track’ for 4C rise

http://www.guardian.co.uk/environment/2013/jan/27/nicholas-stern-climate-change-davos?CMP=twt_gu



URGENT MESSAGE TO COP-11 FROM GCI

There are no military solutions to climate change. Moreover, whatever the unresolved arguments are about where humanity has come from – 'creationist' versus 'evolutionist' – the rationale for an inclusive, full-term, framework-based-market of *Contraction and Convergence (C&C)* is fundamental to the future intelligent design of the means and ends of avoiding dangerous climate change.

So, do we have or lack the judgement and the resolve to organize this effort? This challenge faces the UN; we are at the Eleventh Conference of the Parties to the United Nations Framework Convention to prevent dangerous Climate Change (UNFCCC), yet climate change is still accelerating dangerously.

The key messages in this document are: -

1. The UNFCCC *objective* was agreed in 1992. It is a safe and stable greenhouse gas [GHG] concentration in the global atmosphere. This is a quantitative limit, it is legally binding and must be set.
2. The agreed *principles* of *precaution* and *equity* in the UNFCCC are governed by this limit. These are meaningless without a global calculus for combining them with the objective so we can calculate how to come together at rates that are solving the problem faster than we are creating it. *Clean technology* is not relevant without - and only relevant *within* - this calculus.
3. The *historic responsibility* of industrialised countries for raising GHG concentration in the atmosphere is clear. To address this debt to the South, the C&C calculus demonstrates the future convergence to equal tradable shares per capita globally and that this can and must be *significantly accelerated* relative to the global contraction of emissions that stabilises GHG concentration in the atmosphere. This is the realistic way to resolve the North/South arguments about 'blame' for the past. Thus, in the interdependent context of surviving climate change, the historic grip of poverty gives way to the mutual benefit from the trading clean development for lucrative emissions equity and global survival.
4. To deal with the *differing national circumstances* that - subject to the accelerated convergence under contraction - remain, intra-regional arrangements can be created, as already happens in the European Union under the Kyoto Protocol, *but* - to avoid political chaos - *away from the UNFCCC* .
5. Not doing this is suicidal. Opposing this, as some do, is too. At the same time, proposing it in words while not proposing it in the numbers, as some others do, is neither competent nor honest. Still further, proposing to actually reverse existing per capita consumption differentials as yet others do, is deluded. Unlike C&C, all of these tendencies are anti-consensus, confused and dangerous.
6. From the outset, the US persistently and correctly demanded *globality* - all countries are involved. This was explained in the *Byrd Hagel Resolution* of the US Senate in 1997; commitment/entitlements inclusively combine 'limitations' with 'reductions' under a global cap. C&C is the only proposition in all the years of this process that directly answers and enables this demand. It prioritises globality with carbon equity over growth, whilst under-writing the clean growth that is still possible.
7. Led by the Africa Group and supported by India and China, C&C was proposed and accepted in Kyoto [See back cover]. C&C is now led again at COP-11 by - inter alia - the government of Kenya. This document lays out the essential text of this proposition in thirteen languages. Some of the clear support for C&C that has grown consistently since Kyoto, is at the end of this document.
8. Whatever atmospheric concentration target is set, C&C *"is inevitably required"* to achieve it. These are the words of former Executive Secretary to the UNFCCC, the late and greatly valued, Joke Waller Hunter. Then again, in the words of the Archbishop of Canterbury head of the Anglican Communion, *"C&C appears Utopian only if we refuse to contemplate the alternatives honestly."*
9. It is evident time is against us. C&C can redress this and COP-11 can and should resolve to evaluate C&C in SBSTA/SBI and establish it as soon as possible as the formal basis of future effort.

Aubrey Meyer

Aubrey Meyer
Director GCI

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CONTENTS

SUSTAIN MAGAZINE September 2005 Aubrey Meyer

“Don’t Annoy the Rhino”

There is a tale about an angry Rhino and the Salisbury-Bulawayo Express. In what was old Rhodesia, a steam train used to go daily between those towns along a single track. But there was trouble. The train-track ran through rhino-territory and, as time went by, the cranky old lead-rhino took umbrage about the train and its route and planned a counter-strike. One day, as the train chugged south at 70 miles an hour, the rhino mounted the track and charged north. The resulting train-smash derailed the train and killed the rhino. A comparable kamikaze situation is developing with global climate change. With greenhouse-gas emissions still accelerating upwards, we are now going down the tracks towards the oncoming angry rhino of dangerous climate change at a rate that threatens chaotic impacts and challenges species survival.

In more technical language, despite the heroic arrangements in favour of the ‘Kyoto Protocol’, we continue globally to cause climate change much faster than our response to avoid it.

So the key question is, what does it really take to avoid this chaos? The answer is ‘Contraction and Convergence’ (C&C) – with appropriate haste, fossil-fuel emissions must contract globally while the international shares in this converge.

ANGRY RATES OF CLIMATE CHANGE

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

In turn, it is this increase in temperature that is behind the global growth of droughts, floods, crop-failures, hurricanes, glacial and ice-cap melt and so on. Estimated accounts for these climate-related damages have been kept by the Re-Insurance industry for the last 40 years.

The records show that this rate of growth, albeit from a lower based figure, is on average going at more than twice the rate of the growth of the economy. Looking forward on this track, it is only a matter of time before they impact and the human economy is derailed by angry rates of climate change.

FULL-TERM FRAMEWORK REQUIRED

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

Whatever else is true, in order to merely slow and then stabilise the rising atmospheric concentrations of greenhouse gas, the underlying net-emissions must contract globally to nearly zero within roughly 50 years if we are to avoid dangerous and potentially runaway rates of global climate change. There are arguments about these rates, but the basic message is inescapable – we are causing the problem faster than we are acting to avoid it. While everybody knows that the UNFCCC was the first step to deal with this, we also know that the ‘evolutionary’ patchwork of the Kyoto Protocol is not an adequate second step. A full-term framework is needed. To measure this, an adequate reading of the problem across global time/space is necessary, otherwise adequate action cannot be organised or even its need understood.

THE TREND-DYNAMIC

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

THE PRINCIPLE OF EQUITY

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

THE PRINCIPLE OF PRECAUTION

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

THE FUTURE IS LIFE

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

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

Contraction and Concentrations

Whatever future level of stable atmospheric CO2 concentrations is deemed 'safe' . . . .

. . . . a future full-term global emissions contraction budget is required by definition to achieve it.

This is true because atmospheric con-centrations are a resonse to emissions cumulatively.

Three contraction:concentration scenarios are shown here . . . .

. . . for 350, 450 and 550 parts per million by volume [ppmv] of atmosphere.

The carbon from one part per mil-lion C02 has a weight of ~ 2.13 billion tonnes of carbon [2.13 GtC].

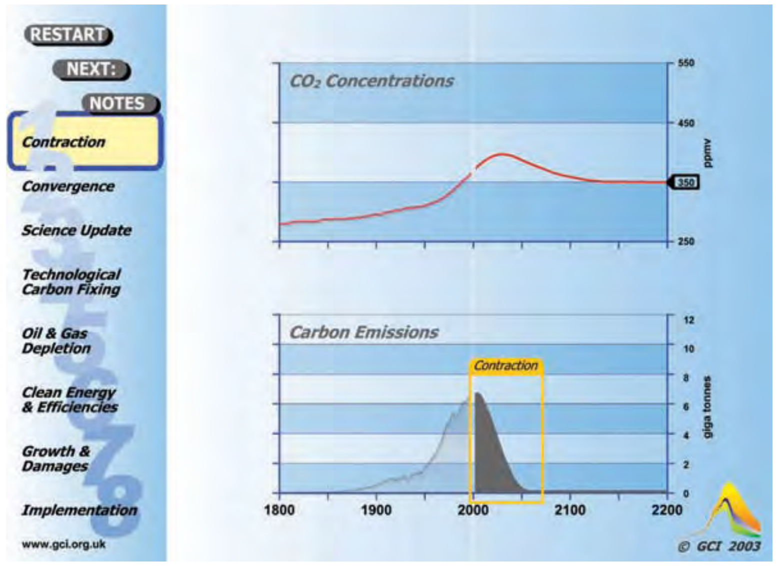
Human emissions from fossil fuel burning have been rising at ~ 2% a year since 1800. The current output is over 6 billion tonnes of carbon a year and rising.

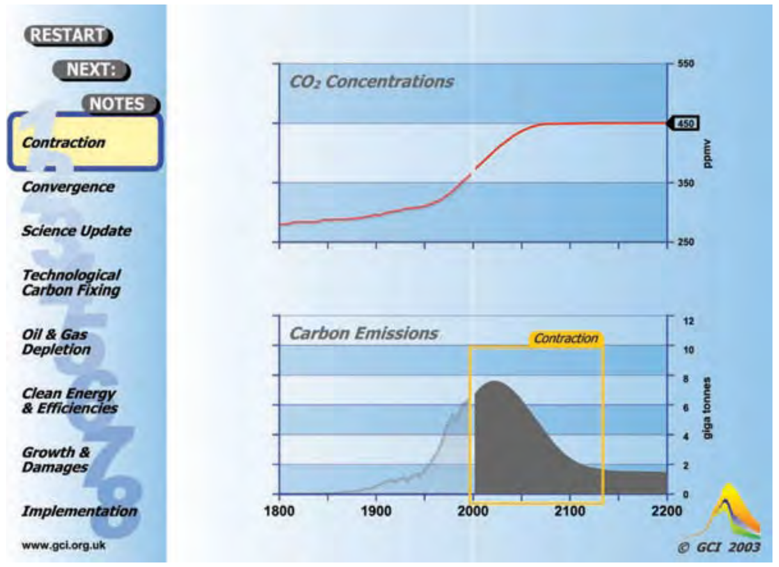
The higher we allow this level to go, the greater are the dangers of runaway global warming and climate change.

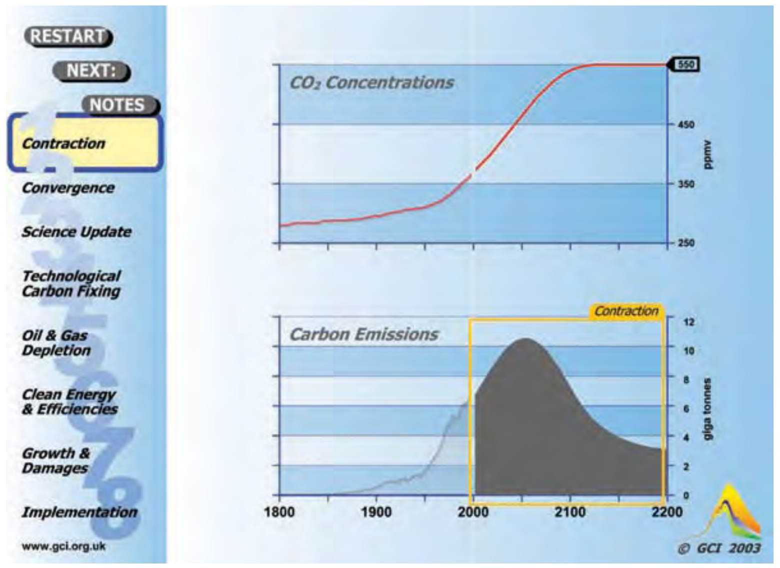
So far the atmosphere has been retaining about half this amount each year, with the other half returning to the biosphere where natural sinks have been enlarging partly reabsorbing the increase.

Recent evidence show that the rate of reabsorption is reducing and the rate of atmospheric retention is increasing.

This suggests that the natural sinks are saturated and in some cases turning to sources themselves e.g. forests.







Carbon Cycle and Sequestration

Recent carbon-cycle modelling from the UK Met-Office 'Hadely Centre' sug-gests that when this effect is taken into account, future levels of atmospheric CO2 concentrations associated with a contraction budget that would have yielded an outcome at 450 ppmv would in fact give an outcome nearer 550 ppmv.

These estimates show that a smaller and more rapidd emissions contraction budget would be required to achieve a 450 ppmv outcome.

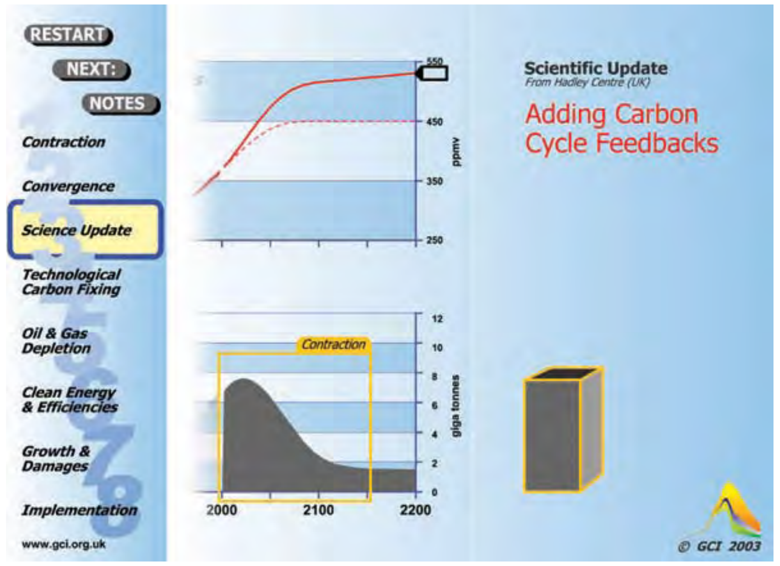
Yet more recent evidence show that these estimates need to be revised downwards yet again.

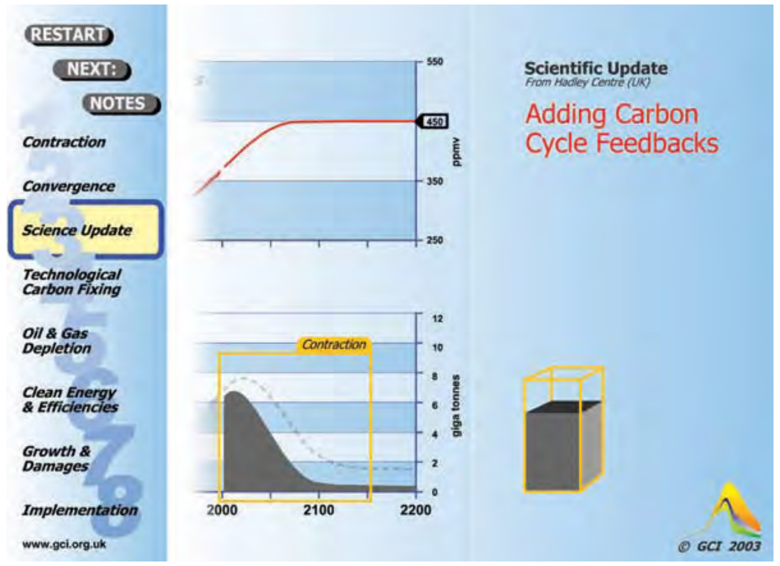
Soils beginning to realease CO2 and in the melting tundra threatening to release Methane.

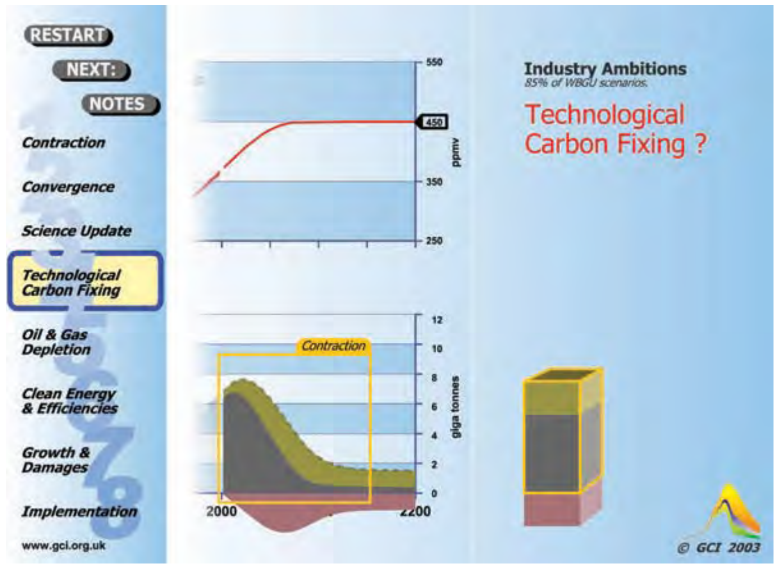
One of the technical options suggested to try and mitigate this is the re-capture of CO2 emissions [where these result from fossil fuel burning] followed by the deep disposal or geological seques-tration of this capture.

The figure shown here [up to 2 GtC/ year] has been suggested in scenarios published by the German Advisory Council on Environmental Change [WBGU].

The technology is unproven and the energy and economic cost of doing this on this scale, formidable.







C&C - Sunrise, Moonshine and Damages

Clean energy technology is already available in non-polluting and renewable forms, such as wind-power and photo-voltaics.

As we achieve stable concentrations with global contraction and convergence, the volume of energy consumption might double, as shown here in the ‘sunrise’ scenario.

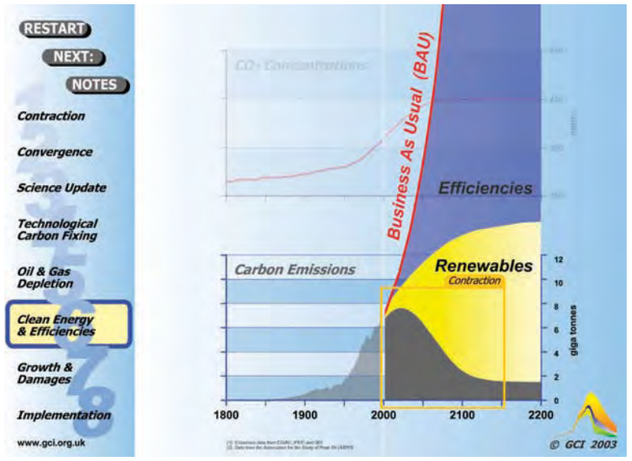
Some economists insist that the economy as a whole will continue to grow at a constant rate due to what they call ‘efficiency gains’.

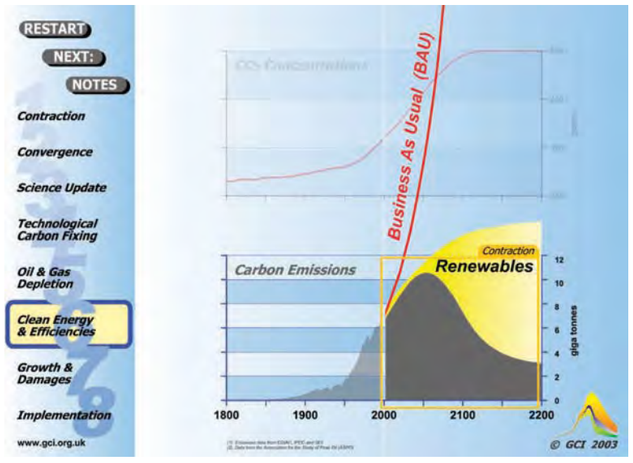
GCI takes the view this is ‘moonshine’. The economy cannot grow indefinitely on a finite planet.

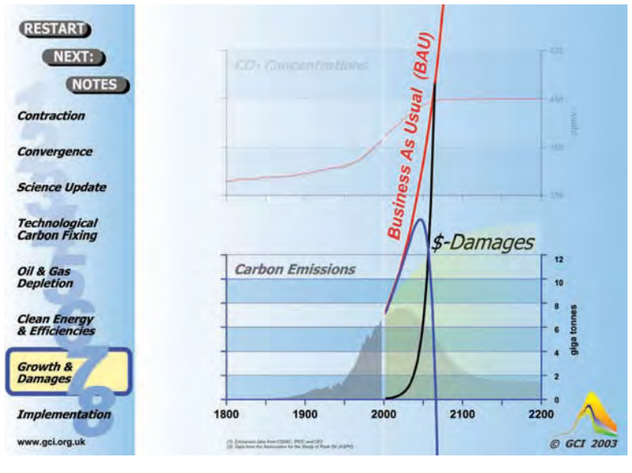
Moreover, economist largely ignore the mal-distribution of “Expansion and Divergence” where the trend has persistnetly been for one third of global population have 94% of global purchasing power and the other two thirds have the other 6%. [See pp 12 and 13].

Furthermore, with increasing damages coming into play as a result of the climate change that we have not managed to avoid, there is the increasing tendency for the growth to become ‘uneconomic growth’.

This is portrayed in the lowest image here where growth at 3% a year is gradually over-taken by damages growing at 6% a year [as recorded by the Re-Insurance Industry]. Unless these trends are averted, climate change damages will bankrupt us all.







Contraction and Convergence [C&C]

Whatever level of atmospheric CO2 concentration is deemed to be the ‘ceiling’ on what is ‘safe’, the effort to keep concentrations at and/or below that level will require an inclusive full-term global contraction budget of future emissions to achieve it.

This by defintion means that international shares in this will converge.

Many have taken the position since 1990 that the standard for convergence should be per capita globally. The ethical case for this seems self-evident as the atmosphere is a global public good.

GCI takes the position that at the first order of argument, any other standard will remain too contestable to organize.

Future emissions permits are being negotiated and pre-distrubuted as ‘tradable emissions entitlements’.

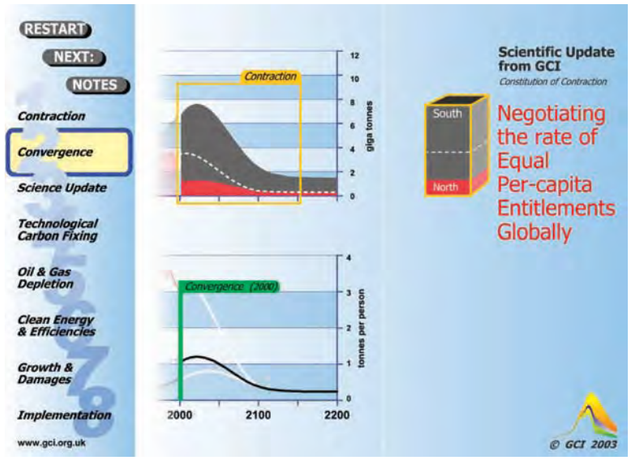
Thus they are commercially valuable and by definition not identical with the actual emissions that will occur.

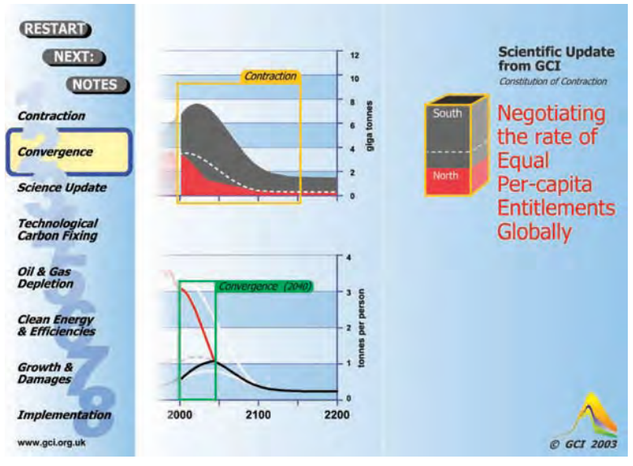
80% of emissions accumulated in the atmosphere so far have come from the 20% of global population who have lived in the industrial countries.

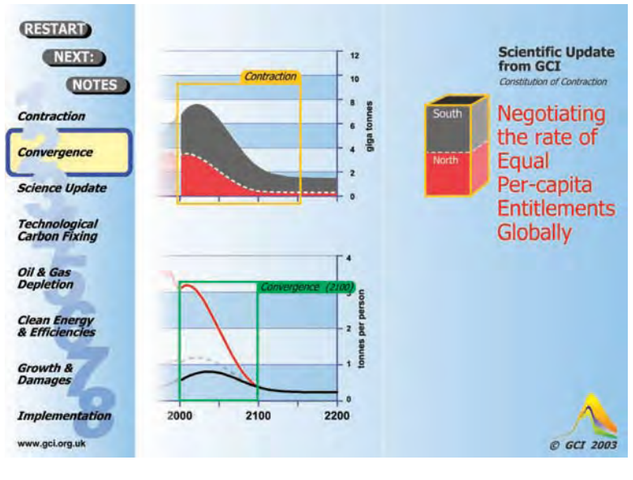
In order to settle this historic debt against the development opportunity cost to the indutrialsing countries, GCI has also proposed that the rate of convergence should be accelerated relative to the rate of global contraction.

Here convergence is shown at three rates; immediate, by 2050 and by 2100.

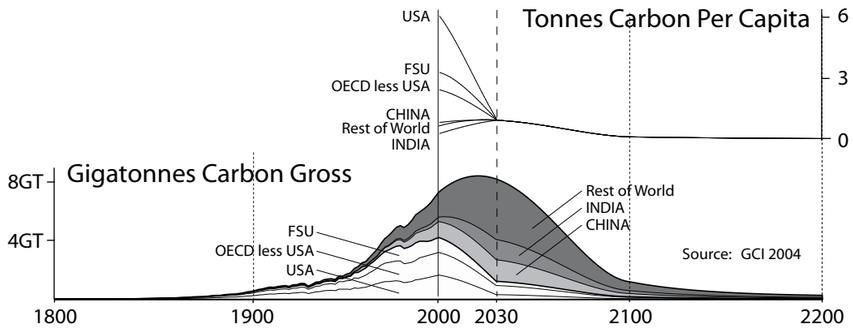
It seems likely that a compromise rate will be agreed around half way between the beginning and the end of the contraction budget.







GCI BRIEFING: “CONTRACTION & CONVERGENCE”



This example shows rates of C&C negotiated as regions.
This example is for a 450ppmv Contraction Budget, Converging by 2030.

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]

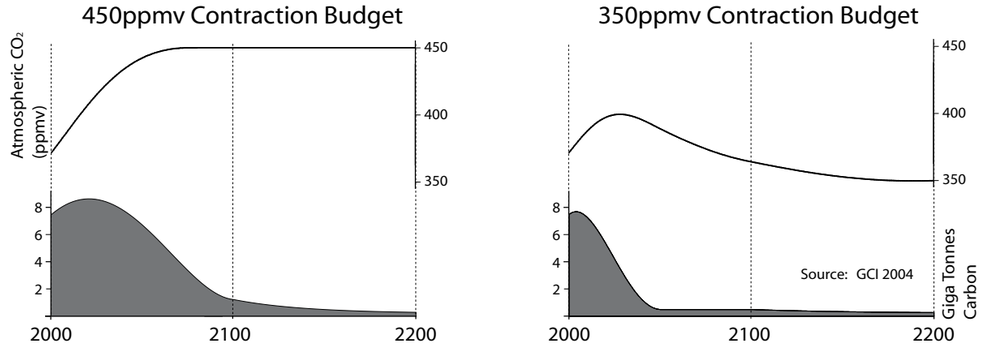
Since then C&C has been widely referenced in the debate about achieving the objective of the UNFCCC. In 2000 C&C was the first recommendation of the UK Royal Commission on Environmental Pollution in its proposals to government. [6] In December 2003 C&C was adopted by the German Government’s Advisory 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 Audit 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]
[4] http://www.gci.org.uk/nairobi/AFRICA_GROUP.pdf
[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 science-based, global climate-policy framework, proposed to the United Nations since 1990 by the Global Commons Institute (GCI). [1,2,3,4]

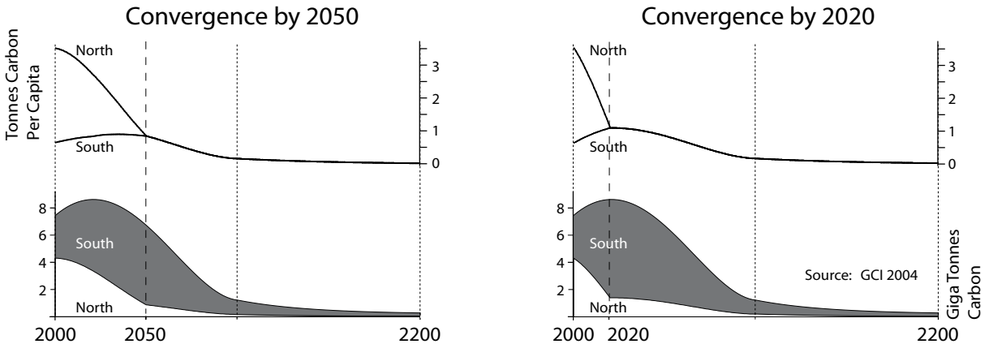
2. The objective of safe and stable greenhouse gas concentrations in the atmosphere and the principles of precaution and equity, as already agreed in the “United Nations Framework Convention of Climate Change” (UNFCCC), provide the formal calculating basis of the C&C framework that proposes:

* A full-term contraction budget for global emissions consistent with stabilising atmospheric concentrations of greenhouse gases (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



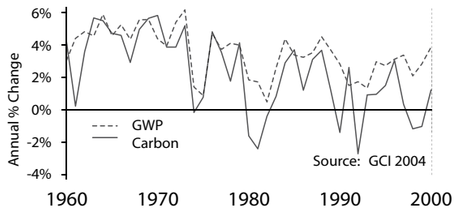
Per capita emissions around the World converge on equality by a negotiated "Convergence Date".
Two examples of convergence are shown here, each within a 450ppmv contraction budget.

* The inter-regional, inter-national and intra-national tradability of these entitlements in an appropriate currency such as International Energy Backed Currency Units [EBCUs - 5] should be encouraged.
* Scientific understanding of the relationship between an emissions-free economy and concentrations develops, so rates of C&C can evolve under periodic revision.

3. Presently, the global community continues to generate dangerous climate change faster than it organises to avoid it. The international diplomatic challenge is to reverse this. The purpose of C&C is to make this possible. It enables scenarios for safe climate to be calculated and shared by negotiation so that policies and measures can be internationally organised at rates that avoid dangerous global climate change.

4. GHG emissions have so far been closely correlated with economic performance (See Image 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 (See Image Four Page Three).

GWP, Carbon Lockstep



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 (see Image Three on page two).

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

7. This synthesis of C&C can redress the increasingly dangerous trend imbalances of global climate change. Built on global rights, resource conservation and sustainable systems, a stable C&C system is now needed to guide the economy to a safe and equitable future for all. It builds on the gains and promises of the UN Convention and establishes an approach that is compelling enough to galvanise urgent international support and action, with or without the Kyoto Protocol entering into force.

[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.rcep.org.uk/pdf/chp4.pdf
[7] http://www.wbgu.de/wbgu_sn2003_engl.pdf
[8] http://www.gci.org.uk/Archive/1989_2004
[9] http://www.gci.org.uk/consolidation/Sasakawa.pdf
[10] http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
[11] http://www.gci.org.uk/temp/COP3_Transcript.pdf
[12] http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
[13] http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]

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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.

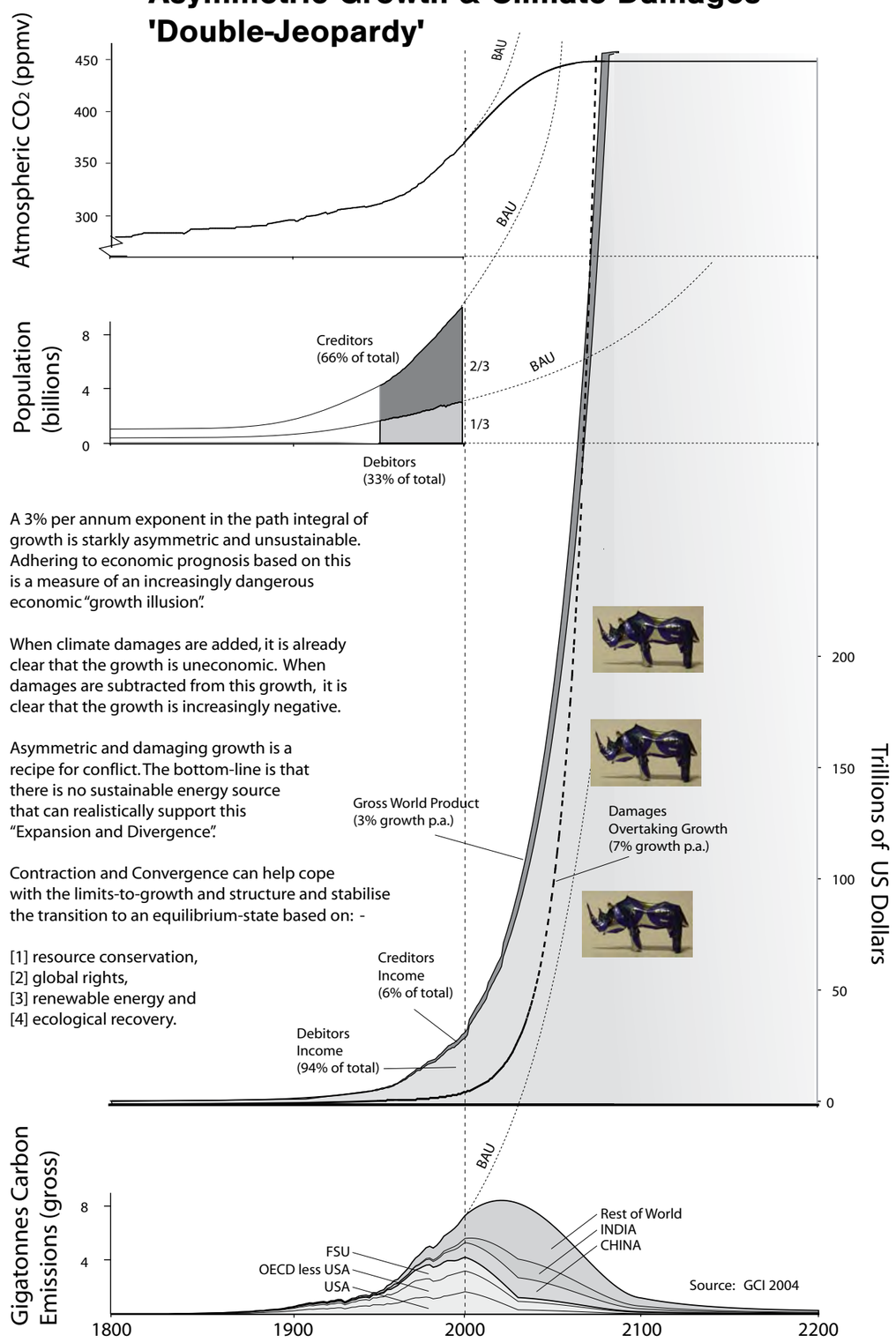
A new feature shown is the rate of economic damages from increasingly 'unnatural disasters' (measured as 'uninsured economic losses' by Munich Re) now rising at 7% per annum, twice the rate of global growth. Another is the devastating and worsening economic asymmetry of "Expansion and Divergence" (E&D). 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.

Asymmetric Growth & Climate Damages 'Double-Jeopardy'



A 3% per annum exponent in the path integral of growth is starkly asymmetric and unsustainable. Adhering to economic prognosis based on this is a measure of an increasingly dangerous economic "growth illusion".

When climate damages are added, it is already clear that the growth is uneconomic. When damages are subtracted from this growth, it is clear that the growth is increasingly negative.

Asymmetric and damaging growth is a recipe for conflict. The bottom-line is that there is no sustainable energy source that can realistically support this "Expansion and Divergence".

Contraction and Convergence can help cope with the limits-to-growth and structure and stabilise the transition to an equilibrium-state based on: -

[1] resource conservation,
[2] global rights,
[3] renewable energy and
[4] ecological recovery.
~~~~~~

A BILL to Establish that Contraction and Convergence will be the strategic goal of national climate change policy; and for connected purposes.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:-

1. Interpretation:

In this Act, "Contraction and Convergence" means:

The rational, science-based, full-term climate-policy framework embodying and quantifying the objective of safe and stable greenhouse gas concentrations in the atmosphere and the principle of the equitable distribution of carbon emission rights to all human beings, as already agreed in the "United Nations Framework Convention of Climate Change" (UNFCCC) www.unfccc.de .

"Carbon emissions" is used throughout this Act to refer to the range of greenhouse gases.

2. Method of calculation and implementation:

To establish the Contraction and Convergence framework, the UK government shall:

- Seek agreement on the precautionary basis already agreed in the UNFCCC, to define and achieve a full-term "contraction-budget" for global greenhouse gas emissions consistent with stabilising atmospheric concentrations of greenhouse gases (GHGs) at a pre-agreed concentration maximum deemed to be safe, based on the carbon cycle modelling as published by the Intergovernmental Panel on Climate Change [IPCC]. http://www.ipcc.ch/
- For the purpose of putting the negotiations on the constitutional rights-based basis of global equity already agreed in the UNFCCC, will seek with or without a population base-year selected for the accounts, [the internationally pre-distributed shares under the C&C projections] the international or inter-regional pre-distribution of this "contraction-budget" as emissions 'commitment/entitlements,' resulting from a negotiated rate of linear "convergence" to equal shares per person globally by an agreed date within the timeline of the full-term contraction budget.
- For the purpose of resolving the historic responsibilities of the already industrialised countries referred to in the UNFCCC, seek agreement to accelerate the rate of global "convergence" relative to the rate of global "contraction" in the "contraction-budget", within the UNFCCC between the regions of the world, whether developed or not, leaving negotiations between countries within their respective regions, to resolve differential circumstances perceived within the regions.
- Encourage the development of international and intra-national tradability of these entitlements which will ensure that rates of investment in emissions-free energy technologies and poverty-free sustainable development for all, and accelerates the existing rate of energy investment consistent with these ends.
- Seek the periodic and timely negotiated revision by the COP/MOPs [Conferences of Parties and Meetings of Parties] to the UNFCCC of the rates of C&C agreed under paragraphs 2(1) and 2(2) to reflect improvements in the scientific understanding of the dangers of climate changes in the SBSTA/SBI [Subsidiary Bodies on Science, Technological Assistance and Implementation] and the IPCC.

3. Report to Parliament

1. Each year, the Secretary of State will publish a report to parliament which will contain:

- an assessment commissioned by the Secretary of State of global greenhouse gas emissions
- a statement by the Secretary of State on the progress or otherwise made in negotiations towards implementing the provisions of this Act
- a statement by the Secretary of State of the efficacy of domestic policy instruments currently in place designed to comply with the Contraction Budget
- a statement by the Secretary of State of the previous year's overall movement towards attaining the Contraction and Convergence event in its entirety - see above.

4. Short title

(a) This Act may be cited as the Contraction and Convergence (Climate Change) Act 2005

Explanatory note:

Presently, the global community continues to generate dangerous climate change much 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.

GHG emissions have so far been closely correlated with economic performance. To date, this growth of economies and emissions has been mostly in the industrialised countries, creating recently a global pattern of increasingly uneconomic expansion and divergence [E&D], environmental imbalance and international insecurity.

The C&C answer to this is full-term and constitutional, rather than short-term and stochastic. It is envisioned as "a robust, inclusive and binding international treaty" as called for by the UK Prime Minister and exemplifies the *"sound, rational, science-based unity, which ensures the right legally-binding framework to incentivise sustainable development."*

We entirely endorse the Prime Minister's remarks that *"we need to cut greenhouse gas emissions radically but Kyoto doesn't even stabilise them"* and his observations that Kyoto, *"won't work as intended, either, unless the views as expressed in the Byrd Hagel Resolution of the US are part of it."*

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 predistribution 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.

The UK's Royal Commission on Environmental Pollution and the German Advisory Council on Global Change both make their recommendations to governments in terms of formal C&C. Many individual and institutional statements supporting C&C are now on record. The Africa Group of Nations formally proposed it to the UNFCCC in 1997. It was agreed in principle at COP-3 Kyoto 1997. C&C conforms to the requirements of the Byrd Hagel Resolution of the US Senate of that year and the European Parliament passed a resolution in favour of C&C in 1998. Reflecting the call for cross-party unity in the UK parliament on the matter of climate change, C&C is already the party position of the Scottish Nationalists, the Welsh Nationalists, the Liberal Democrats and the Greens with many individual members of other parties already supporting it.

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 remaining in force.

Contraction Budget means; - Full-Term Global Emissions Time-Dependent Integral consistent with a pre-defined atmospheric greenhouse gas concentration that is stable and safe actuarily defined by: -

1. Total weight over time integral [EG 360 Billion Tonnes Carbon over 60 years with averge 6 Billion-Tonnes per Annum against a concentration value of 400 parts per million [ppmv] by 2070];
2. First year output value [eg 2010, 6 Billion Tonnes per Annum];
3. Final year output value [eg 2070, 1 Billion Tonnes per Annum];
4. Between and including the first and the final years, the year-on-year output progression with a sigmoid positivie-to-negative growth function that year-on-year reconciles the carbon-path-integral with the full-term carbon-weight-integral and thus the ppmv outcome.

C&C
"Contraction and Convergence"

http://www.gci.org.uk/translations/CandC_Statement(Arabic).pdf

[ARABIC TEXT]

"التخفيض والاقتراب"

1. "التخفيض والاقتراب" (C & C) هو الإطار العلمي العام لسياسة مناخ عالمية تم اقتراحها إلى منظمة الأمم المتحدة منذ سنة 1990 من قبل المعهد العالمي للعوام" (GCI).

2. يوفر هدف تحقيق تراكيز سليمة ومستقرة من الغاز المحتبس في الغلاف الجوي وتطبيق مبادئ الوقاية والعدالة كما تم الاتفاق عليها مسبقاً في *"إطار بنود اتفاقية الأمم المتحدة الخاصة بالتغير المناخي"* (UNFCCC)، الأساس الرسمي المنظم لإطار مفهوم "التخفيض والاقتراب" (C & C) الذي يقترح: -
   - تخصيص ميزانية تخفيض طويلة الأجل للابتعاث الغازي العالمي تتوافق مع إجراءات تثبيت معدلات تركيز الغازات المحتبسة (GHGs) ووفق حد أعلى من التركيز متفق عليه مسبقاً يمكن اعتباره آمناً اعتماداً على نموذج دورة الكربون المقر من قبل مجموعة IPCCWG1 [ويعتبر المعهد العالمي للعوام GCI معدلات ثاني أكسيد الكربون التي تزيد عن 450 جزء بالمليون "غير آمنة"]
   - إن المساهمة الدولية في هذه الميزانية بشكل "استحقاقات" مالية تنشأ عن معدل ممكن تحقيقه من الالتقاء الخطي للحصص المتكافئة للشخص الواحد على نطاق عالمي بموجب تاريخ متفق عليه ضمن النطاق الزمني للمدة الكلية لاتفاقية التخفيض والتركيز الغازي. ويقترح معهد GCI [1] سنة 2030 أو 2040، أو بحدود ثلث الطريق باتجاه إعداد ميزانية لمدة 100 سنة على سبيل المثال لإكمال التقارب [أنظر الفقرة 5 والصور 1 و 2 أدناه] و [2] تم الاتفاق على سنة الأساس السكاني في جدول "التخفيض والاقتراب" (C & C)]
   - وينبغي أن تجرى المفاوضات المتعلقة بهذا الشأن على مستوى (UNFCCC) في الدرجة الأساس بين أقاليم العام، متيحة المجال لإجراء مفاوضات بين الأقطار الواقعة في الأقاليم الخاصة بها أصلاً كالإتحاد الأوروبي، والاتحاد الأفريقي، والولايات المتحدة، الخ.
   - وينبغي التشجيع على إنشاء نظام للتبادل التجاري البيني والضمني على النطاقين الإقليمي والوطني لهذه الاستحقاقات باستعمال عملة متداولة مناسبة كالوحدات النقدية الدولية المدعومة بالطاقة [EBCUs]. لقد تطور الفهم العلمي لطبيعة العلاقة بين اقتصاد خالٍ من الابتعاث والتراكيز الغازية، لذا فإن معدلات "التخفيض والاقتراب" (C & C) يمكن لها أن تتطور بموجب إجراءات للمراجعة الدورية.

3. ويستمر المجتمع الدولي في الوقت الحاضر بإحداث تغييرات مناخية خطرة بوتائر أسرع مما يجعله قادراً على اتخاذ إجراءات لتفاديها. ويكمن التحدي الدبلوماسي في عكس هذا التأثير. وينحصر الهدف من سياسة "التخفيض والاقتراب" (C & C) في جعل ذلك ممكناً. إذ أنه يُمكّن من اعتماد سيناريوهات والمشاركة في إعدادها لتحقيق مناخ آمن من خلال التفاوض حتى يمكن تنظيم السياسات والإجراءات عالمياً بوقائع تتجنب إحداث تغييرات مناخية خطرة.

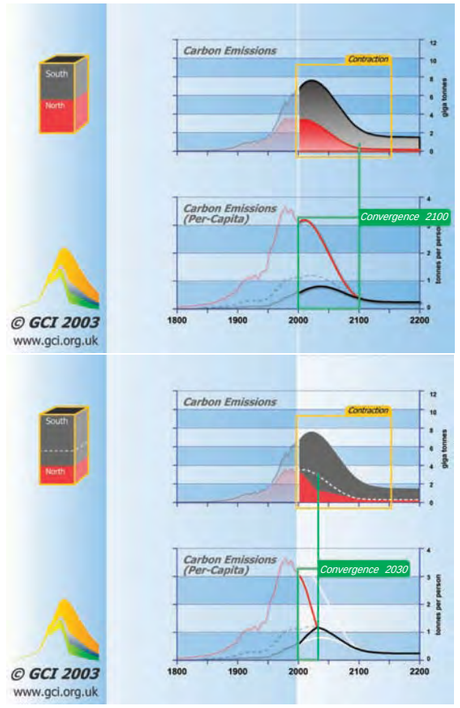
4. كانت الإبتعاثات الغازية المحتبسة GHG حتى الآن مرتبطة إلى حدٍ بعيد بعلاقة متبادلة مع الأداء الاقتصادي. ويحدث هذا النمو الحالي في الاقتصادات والإبتعاثات غالباً في الدول الصناعية محدثاً في الآونة الأخيرة نمطاً عالمياً متزايداً في التوسعات والتحولات غير الاقتصادية وحالة من عدم التوازن البيئي وعدم الاستقرار العالمي.

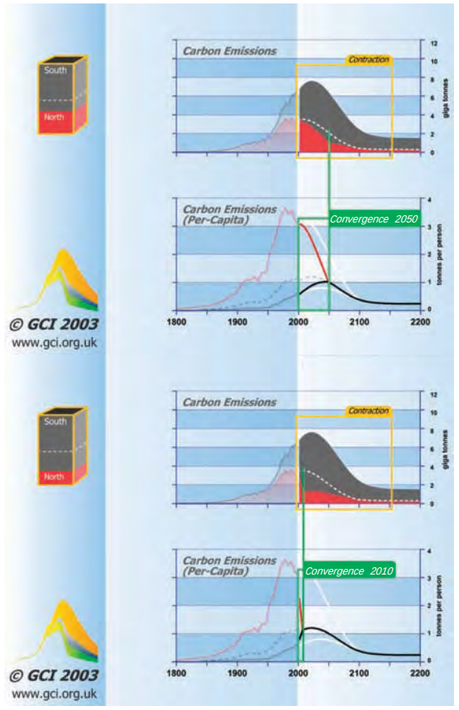
5. استجابت سياسة "التخفيض والاقتراب" (C & C) لهذه التغيرات على نحو شامل ومنطقي ولم يتم إعدادها للمدى القصير أو بطريقة عشوائية. كما أنها تناولت النزاع العقيم بشأن المسؤوليات التاريخية المتعلقة بزيادة التراكيز الغازية واعتبار ذلك كفرصة تنموية للدول المصنعة حديثاً. وتساعد سياسة "التخفيض والاقتراب" (C & C) على تحقيق توزيع دولي مسبق لهذه التبادلات وبالتالي فإن أية استحقاقات مستقبلية قيمة لبعث غازات محتبسة ستنشأ من معدل تقارب تم تسريعه على نحو متعمد ذو صلة بالمعدل العالمي للتخفيض المتفق عليه [أنظر الصورة رقم 2].

6. قامت المفوضية الملكية للحد من التلوث البيئي في المملكة المتحدة والجمعية الاستشارية الألمانية للاهتمام بالتغييرات المناخية العالمية بتقديم توصياتهما بشأن التغييرات المناخية إلى حكومتي بلديهما فيما يتعلق بسياسة "التخفيض والاقتراب" (C & C) الرسمية. كما تم إدراج العديد من التصريحات الفردية والمؤسساتية المؤيدة لسياسة "التخفيض والاقتراب" (C & C) في السجلات. وقد تم اقتراحها من قبل مجموعة الدول الأفريقية للعمل بها رسمياً ضمن "إطار بنود اتفاقية الأمم المتحدة الخاصة بالتغير المناخي" (UNFCCC) في سنة 1997. وقد تم الاتفاق مبدئياً في مؤتمر كيوتو COP-3 الذي عقد في سنة 1997 على تطابق سياسة "التخفيض والاقتراب" (C & C) مع الشروط الأساسية لقرار "بارید هاغل" في مجلس الشيوخ الأمريكي من تلك السنة كما أن الاتحاد الأوروبي أصدر قراراً لصالح تطبيق سياسة "التخفيض والاقتراب" (C & C) في سنة 1998.

7. إن إعداد سياسية "التخفيض والاقتراب" (C & C) يمكن أن يقوم الاتجاه المتزايد الخطورة في عدم توازن التغيرات المناخية العالمية. وقد تم بناؤها استناداً إلى حقوق عالمية وقواعد للمحافظة على الموارد وأنظمة مدعمة، إن توفير نظام مستقر "للتخفيض والاقتراب" يعد أمراً مطلوباً في الوقت الحاضر لتوجيه عجلة الاقتصاد وتحقيق مستقبل آمن ومتكافئ للجميع. ويستند تحقيقه على مكاسب ووعود اتفاقية الأمم المتحدة ويؤسس منهجاً قوياً ما في الكفاية لبلورة دعم واتخاذ إجراء عالمي عاجل مع دخول اتفاقية كيوتو الدولية حيز التطبيق أم بدونها.

i http://www.gci.org.uk
ii http://www.gci.org.uk/model/dl.html
iii http://www.gci.org.uk/images/CC_Demo(pc).exe
iv http://www.gci.org.uk/images/C&C_Bubbles.pdf
v http://www.feasta.org
vi http://www.rcep.org.uk/pdf/chp4.pdf
vii http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii http://www.gci.org.uk/Archive/1989_2004
ix http://www.gci.org.uk/consolidation/Sasakawa.pdf
x http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]





C&C

"Contraction and Convergence"

http://www.gci.org.uk/translations/CandC_Statement(Chinese).pdf

[CHINESE TEXT]

"紧缩与趋同" (C&C)

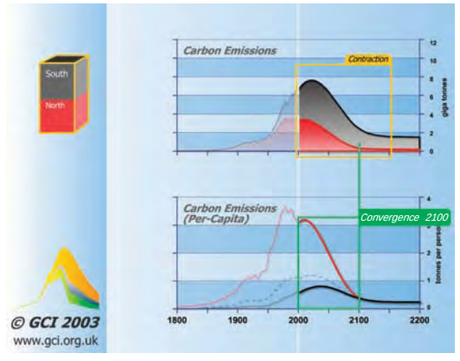
1. "紧缩与趋同"(C&C)是一项建立在科学分析基础上的全球气候政策框架，1990年起由英国"全球公共资源研究所（GCI）"向联合国提交[i] [ii] [iii] [iv]。
2. C&C框架的计算方法本着预防和公平的原则，目标是使空气中的温室气体浓度达到安全和稳定的水平（这两点已得到《联合国气候变化框架公约》（UNFCCC）的认同）。该框架内容如下：-
   - 控制全球排放水平，使空气中的温室气体（GHGs）浓度保持稳定，不超过根据IPCC WG1 二氧化碳循环模型预先设定的安全值[GCI认定空气中二氧化碳含量达到450ppmv即为"不安全"]，并根据这一标准设定长期减排预算。
   - 享有碳排放权是世界各国的基本"权利"。确保享有这项"权利"的总预算要由各国分摊。根据人均原则在长期减排/浓度协议规定的时间内制定某一目标年全球统一的人均排放目标。[GCI提出两条建议：[1]到2030或2040年，或在100年期预算的前三分之一时间内实现全球人均排放的趋同[参见第5点及以下图1和图2]；[2]各国应就C&C框架实施时间表的人口基数年达成一致意见]。
   - 在UNFCCC举行的磋商应主要为地区层次间的磋商，国家间的磋商应主要放在各地区（如欧盟、非洲联盟和美国等）内部进行。
   - 应鼓励采用"国际能源货币单位（EBCU）"等适当货币作为排放权在地区间、国家间和各国国内的交换工具。
   - 随着人们对达到何种排放浓度即被视为无排放经济体这一科学认识的深化，C&C比率可定期加以调整。
3. 当前，世界各国采取措施避免气候恶化的步伐，仍跟不上各国过量排放导致气候恶化的速度，气候恶化已经达到了危险的程度。国际社会正在采取外交努力，力图扭转这一危险趋势，这也正是C&C的宗旨。由于它的作用，在协商过程中各国能够对安全气候的情景预测加以计算和共享，从而使各国能够迅速统一地制定政策措施，避免全球气候发生危险变化。
4. 迄今为止，温室气体排放水平始终与经济运行状况密切相关。目前，经济和温室气体排放同步增长的现象主要发生在工业化国家，导致近期全球经济发展出现不经济的扩张和分散、环境失衡和国际安全形势的恶化。
5. 针对这一问题，C&C框架提供的是长期的和机制上的保证，而并非短期的权宜之计。

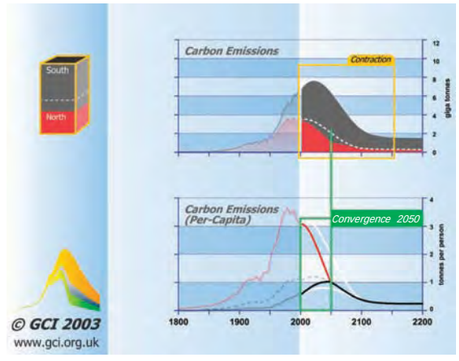
   一直以来，有一种观点将气候的恶化看作经济发展的机会成本，将全球温室气体排放浓度的增加归咎为新兴工业化国家的"历史责任"。对此，C&C框架预先分配了各国未来的温室气体排放权（由于可交换，因此具有价值）。趋同速度在各国一致同意的全球统一减排速度基础上加速得出。[见图2]

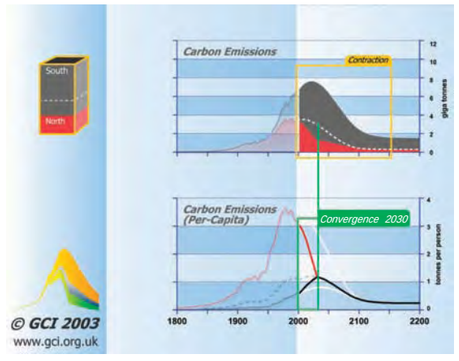
6. 英国皇家环境污染[vi]委员会和德国全球变化[vii]委员会都建议各自政府正式采纳C&C框架，以应对气候变化。个人和机构对C&C的支持声明屡见报端[viii] [ix]。"非洲国家组织已于1997年[x]正式提议UNFCCC采纳C&C框架，并于1997年COP-3京都[xi]原则上通过。C&C于当年[xii]通过美国参议院"Byrd Hagel Resolution"的相关要求，欧洲议会也于1998年[xiii]通过决议，支持C&C框架。
7. C&C这一整套框架，能够矫正全球气候变化失衡的危险趋势。C&C框架着眼于全球利益、资源保护和可持续发展机制，因此我们需要稳步实施C&C框架，以指导全球经济发展，为所有人创造安全和公平的未来。

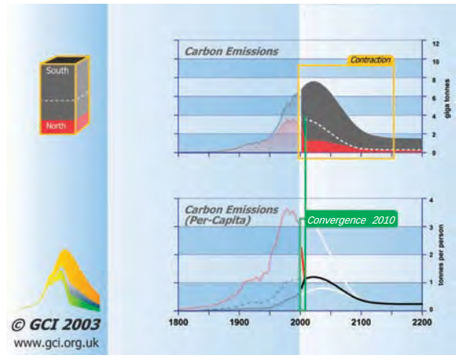
   C&C框架是对联合国公约原则的继承和发扬。它所提出的解决方案将得到各方认同，因此，无论《京都议定书》能否生效，C&C框架都一定能够得到国际社会的支持和行动回应。

[i] http://www.gci.org.uk
[ii] http://www.gci.org.uk/model/dl.html
[iii] http://www.gci.org.uk/images/CC_Demo(pc).exe
[iv] http://www.gci.org.uk/images/C&C_Bubbles.pdf
[v] http://www.feasta.org
[vi] http://www.rcep.org.uk/pdf/chp4.pdf
[vii] http://www.wbgu.de/wbgu_sn2003_engl.pdf
[viii] http://www.gci.org.uk/Archive/1989_2004
[ix] http://www.gci.org.uk/consolidation/Sasakawa.pdf
[x] http://www.gci.org.uk/papers/zew.pdf [附录 C，第16页]
[xi] http://www.gci.org.uk/temp/COP3_Transcript.pdf
[xii] http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
[xiii] http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [第27 - 32页]









C&C
"Contraction and Convergence"

http://www.gci.org.uk/translations/CandC_Statement(Hindi).pdf

[HINDI TEXT]

"कन्ट्रैक्शन और कन्वर्जेन्स" (C&C)
"Contraction and Convergence" (C&C)

1. *"कन्ट्रैक्शन और कन्वर्जेन्स" ("Contraction and Convergence" (C&C)) विज्ञान पर आधारित दुनिया भर में मौसम से सम्बन्धित नीति है जो संयुक्त राष्ट्र को* ***1990*** *से ग्लोबल कामन्स इन्सटीट्यूट (GCI) द्वारा प्रस्तावित की गई है।*[i ii iii iv]

2. वातावरण में सुरक्षित और स्थिर ग्रीनहाऊस गैस के जमावड़े के लक्ष्य और सावधानी और सुनीति के सिद्धान्त जो पहले ही *"युनाईटेड नेशन्स फ्रेमवर्क कन्वैन्शन आव क्लाईमेट चेंज"* (UNFCCC) "*United Nations Framework Convention of Climate Change*" (UNFCCC) में सहमत की गईं हैं, जो औपचारिक रूप से C&C के काम करने के ढांचे को ऑकने के आधर को प्रदान करता है जो निम्नलिखित प्रदान करता है : -

   - दुनिया भर में निकासियों के लिए पूरे समय का ऐठा हुआ बजट जो ग्रीनहाऊस की गैसों (GHGs) के वातावरण में एकाग्रता को स्थिर बनाए जो पहले ही से सहमत अधिकतम एकाग्रता को बनाना जो सुरक्षित माना जाए, IPCC WG1 कार्बन साईकल की मौडलिंग के बाद। [GCI को तब अधिक माना जाता है जब यह 450 ppmv से अधिक हो जो कार्बनडाईओक्साईड के 'सुरक्षित नहीं है' के बराबर है]।
   - इस बजट को 'ऐन्टाईटलमैन्ट्स' के रूप में अन्तर्राष्ट्रीय स्तर पर विभाजन करना हर व्यक्ति के बराबरी के शेयरों के रेखाबद्ध केन्द्र अभिमुखता के विनिमेय दर का एक परिणाम स्वरूप है जिसे पूरे समय के कन्ट्रैक्शन/कन्सैन्ट्रेशन की सहमति सहमत की गई तिथि पर पूरे समय की समय सरणी के अधीन दिया हो। [GCI यह सुझाव देता है कि [1] वर्ष 2030 या 2040, या लगभग रास्ते का तिहाई जो 100 वर्ष में हो, उदाहरण के रूप में, केन्द्र अभिमुख को पूरा करने के लिए [अंक 5 और तस्वीरें 1 और 2 को नीचे देखें] और [2] C&C की समय-सारणी में जनसंख्या के वर्ष के आधार को माना जाए]।
   - इसके लिए UNFCCC की बातचीत को सैद्धान्तिक रूप में दुनिया के क्षेत्रों के बीच होना चाहिए, जिसमें बातचीत को देशों के मध्य उनके क्षेत्रों में छोड़ देना चाहिए, जैसे कि योरोपियन यूनियन, अफ्रीका युनियन, यू.ऐस. आदि।
   - इन ऐन्टाईटलमैन्ट्स की सम्बन्धित मुद्रा में अन्तर-क्षेत्रीय, अन्तर-राष्ट्रीय और आन्तरिक राष्ट्रीय व्यापारिक योग्यता को बढ़ावा दिया जाना चाहिए जैसे कि अन्तर्राष्ट्रीय ऊर्जा से सहायता की मुद्रा की इकाईयों (इन्टरनैशनल ऐनर्जी बैक्ड करन्सी युनिट्स - International Energy Backed Currency Units [EBCUs])को बढ़ावा दिया जाना चाहिए।
   - निकासी से मुक्त अर्थव्यवस्था और जमावड़े के विकास के बीच सम्बन्ध को वैज्ञानिक तरीके से समझना, इसलिए C&C की दरों को समय-समय पर पुनिर्वचार किया जाता है।

3. वर्तमान में, भौगौलिक समुदाय ख़तरनाक मौसम के बदलाव को तेज़ी से पैदा कर रहा है विपरीत इसके कि वह उसे रोकने के लिए संगठित हो। अन्तर्राष्ट्रीय दूत के लिए इसे उल्टा करने की चुनौती है। इसको सम्भव करना C&C की भूमिका है। यह मौसम की सुरक्षित स्थितियों को ऑकने की योग्यता कराता है और जो बातचीत द्वारा बॉटा जा सके ताकि नीतियों और मापों को उन दरों के आधार से अन्तर्राष्ट्रीय स्तर पर संगठित किया जा सके जिससे दुनिया में मौसम के ख़तरनाक बदलाव को रोका जा सके।

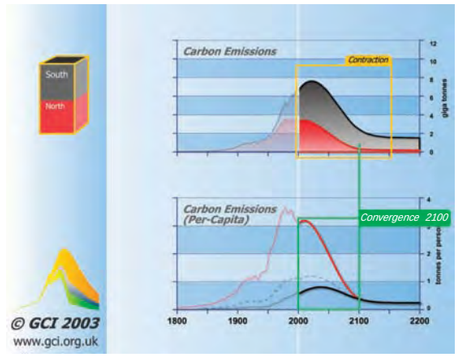
4. GHG की निकासी को अभी तक आर्थिक प्रदर्शन के साथ समीप से सम्बन्ध कराया गया है। आज तक, G यह आर्थिक अवस्थाओं और निकासी का विकास अधिकतर औद्योगिक देशों में हुआ है, जिससे हाल ही में एक भौगोलिक नमूना तैयार किया जाना जो अधिक तौर पर ग़ैर आर्थिक अवस्था के बढ़ावे के फैलाव और भिन्नता [E&D], पर्यावरण असंतुलन और अन्तर्राष्ट्रीय असुरक्षा।

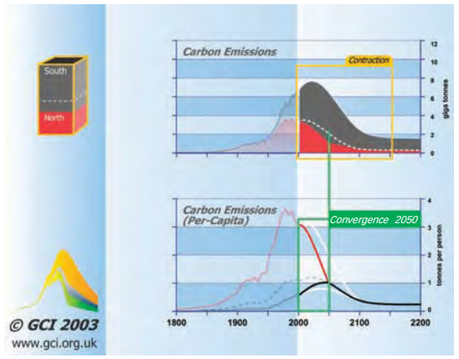
5. C&C का इसके प्रति उत्तर है पूरे समय और संविधानिक है बजाए कि कम समय के लिए और बेतरतीब के। बढ़ रहे जमावड़ों के लिए यह 'ऐतिहासिक जिम्मेवारियों' स्थिर बहस का हल करता है जिसे नए औद्योगिक देशों के लिए यह एक विकास के अवसर को कीमत के रूप में पहचानता है। C&C इन व्यापार योग्य और इसलिए भविष्य के लिए कीमती अधिकारों की पहले से निर्धारित अन्तर्राष्ट्रीय वितरण के लिए योग्य करता है जिससे GHGs की गैसों का निकास हो सके जो केन्द्र अभिमुख की दर के परिणाम स्वरूप हो जिसे सहमत की गई दुनिया भर की सिकुड़न के साथ सम्बन्ध में जान बूझ कर बढ़ावा दिया गया हो [तस्वीर 2 देखें]।

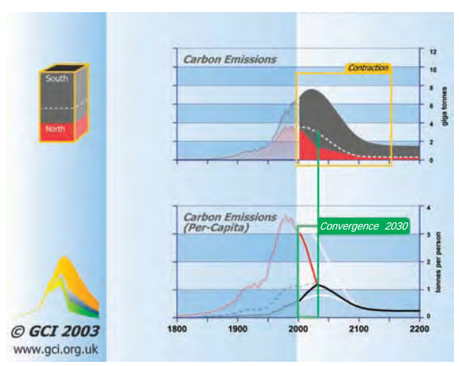
6. यू के का रॉयल कमिशन ऑन ऐनवायरनमेन्टल पौल्यूशन और जर्मन ऐड्वाईज़री काऊन्सल ऑन ग्लोबल चेंज[vii] (The UK's Royal Commission on Environmental Pollution[vi] and the German Advisory Council on Global Change[vii]) दोनों C & C के औपचारिक रूप से मौसम के परिवर्तन में अपनी सिफ़ारिशें सरकार को देते हैं। कई लोग और संस्था के ब्यान जो C&C को समर्थन देते हैं उनको रिकार्ड पर रखा गया है।[viii ix] अफ्रीकी गुप आव नेशन्स (The Africa Group of Nations) ने इन्हें औपचारिक तौर पर UNFCC को इसका प्रस्ताव रखा 1997 में रखा था।[x] सैद्धान्तिक रूप में इसे COP-3 Kyoto 1997 में सहमत किया गया था।[xi] C&C युनाईटेड स्टेट्स सैनैट की उस वर्ष की वाईर्ड हेगल रैज़ोल्यूशन (Byrd Hagel Resolution) की ज़रूरतों को मानता है[xii] और योरोपियन पारलिमेन्ट ने C&C के समर्थन में 1998 में एक प्रस्ताव को पास किया था।[xiii]

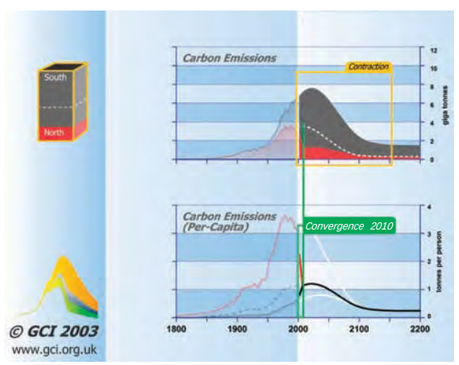
7. C&C का यह संकलन दुनिया भर के मौसम के परिवर्तन में बढ़ रहे ख़तरनाक असंतुलन में सुधार कर सकता है। दुनिया भर के अधिकारों, स्रोतों के संरक्षण और देर तक चलने वाली प्रणाली पर बनी यह C&C की एक प्रणाली अर्थव्यवस्था का मार्गदर्शन करने के लिए अब आवश्यक है जिससे सभी को सुरक्षित और समान भविष्य प्राप्त हो। यह युनाईटेड नेशन्स कन्वैंशन (UN Convention) के लाभों और शर्तों पर निर्मित है और ऐसी पहुँच को स्थापित करता है कि जो काफ़ी बाध्य है जिससे आवश्यक अन्तर्राष्ट्रीय समर्थन और कार्यवाही को क्योटो प्रोटोकॉल (Kyoto Protocol) का बल में दाखिल हुए या इस के बिना इस को उभार सके।

i http://www.gci.org.uk
ii http://www.gci.org.uk/model/dl.html
iii http://www.gci.org.uk/images/CC_Demo(pc).exe
iv http://www.gci.org.uk/images/C&C_Bubbles.pdf
v http://www.feasta.org
vi http://www.rcep.org.uk/pdf/chp4.pdf
vii http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii http://www.gci.org.uk/Archive/1989_2004
ix http://www.gci.org.uk/consolidation/Sasakawa.pdf
x http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]









C&C

“Contraction and Convergence

http://www.gci.org.uk/translations/CandC_Statement(Japanese).pdf

[JAPANESE TEXT]

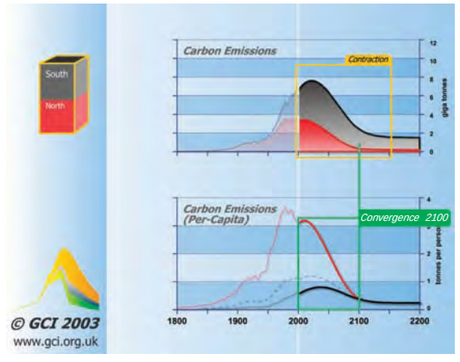
1. 「Contraction and Convergence(C&C)」 は、Global Commons Institute（GCI、地球の民協会）が1990年から国連に提案している科学的見地に基づいた地球規模の気候政策の枠組み[i] [ii] [iii] [iv]である。
2. 「国連気候変動枠組条約(UNFCCC)」によってすでに合意されたように、大気中の温室効果ガスを安全かつ安定した濃度に保つという目的と、警戒と公平の原則とによってC&Cの枠組みに基づく公式算出基準が規定され、それによって下記のような提案が行われる。

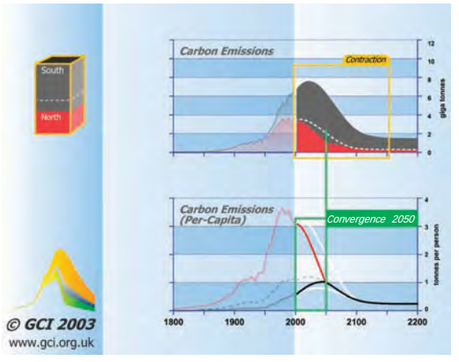
- 大気中の温室効果ガス(GHG)濃度を、IPCC WG1炭酸ガスサイクルモデリングに従って安全とみなされる最大限の数値として事前に合意された濃度で安定させることができるレベルまで、地球全体の排出量を削減するための長期的な削減予算[GCIは450 ppmv CO2 相当を「安全でない」とみなしている]。
- 国家間での予算配分は「資格」として、長期的な削減/濃度協定のスケジュール内の合意された日までの直線的な縮小率の交渉可能な比率から、一人一人に均等に配分されるよう算出されたものである。[GCI では、[1] 2030年または2040年、または例えば削減を完了する100年分の予算の約1/3[下記第5項、画像1、2参照]と、[2] C&Cスケジュールにおける人口ベース年に賛成することの2点を示唆している]
- UNFCCCにおけるこの交渉は、各地域の国家間で最初に行われる交渉として世界の地域間すなわち欧州連合、アフリカ連合、米などの間で主に行われるべきである。
- これらの資格をInternational Energy Backed Currency Units（国際エネルギー本位通貨単位） [エネルギー本位通貨] [v]などの適切な通貨を使用して地域間、国家間、国家内で取り引きすることを奨励するべきである。
- 排出量ゼロの経済と濃度との関係に対する科学的な理解の発展に従って、C&Cの比率は定期的に見直しを行って変更することが可能である。

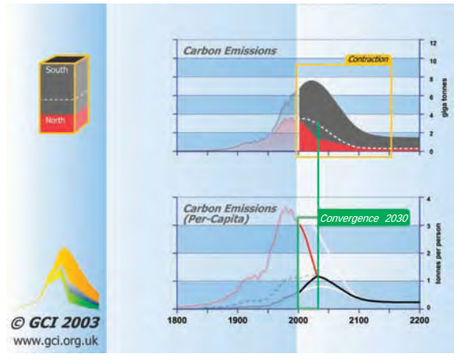
3. 現在、地球社会において継続している危険な気候の変化は、それを防止するための対応準備よりも速く進んでいる。国際的外交の課題はこの流れに逆らうことであり、C&Cの目的はこれを可能にすることである。これによって危険な地球の気候変動を防止できる速さで国際的な政策と措置が行われるよう、安全な気候を算出し交渉によって配分できるようなシナリオが可能となる。
4. GHGの排出は、現在に至るまで経済活動と密接な関連がある。今日までこの経済成長と排出量の増加はほとんど工業国で起こっているものであり、近年では地球規模のパターンとして不経済な拡張と相違[E&D]や環境の平衡失調、国際的な不安を生み出している。
5. これに対するC&Cの回答は、短期的確率論的であるよりもむしろ長期的体質的なものである。C&Cは濃度の増加についての「歴史的な責任」においては、新たに工業が発展してきた国々にとってはこれが発展する機会の代償であることを認識しながら、慣性を根拠として提起している。C&Cによって、このように取引可能でそれゆえ価値のある、将来温室効果ガスを排出する資格を国際的に配分することが可能となり、それは合意された地球全体の削減率に関連して慎重に早められた縮小率から得られた結果である[画像2参照]。

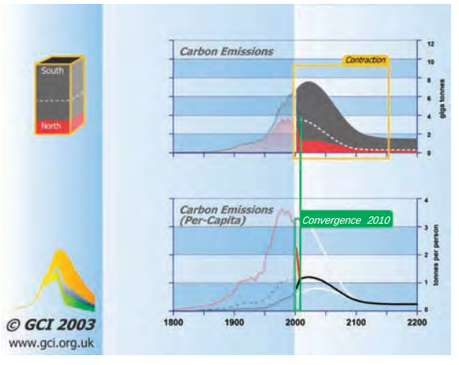
6. 英国王立環境汚染委員会[vi] とドイツ地球変動報告会議[vii] は、いずれも気候変動に関する政府への推奨事項として公式のC&Cの観点から述べている。多数の個人、機関によるC&C支持の発言が 記録されている[viii] [ix]。1997年にはAfrica Group of Nations（アフリカ国家グループ）がUNFCCCに対して公式にC&Cを提案している[x]。これは1997年京都で開催された第3締約国会議(COP-3)においては、原則として合意された[xi]。C&Cは同年米上院で採択されたバード決議の要求事項[xii] に準拠し、また欧州議会では1998年にC&Cに賛成する決議案が通過した[xiii]。
7. このようなC&Cの統合によって、より危険度を増す傾向にある地球の気候変動の不安定さを是正することが可能となろう。地球上での権利、資源の保護と持続可能なシステムを基礎とする安定したC&Cシステムは、あらゆるものにとって経済を安全で公平な未来に導くために必要とされている。同システムは国連の条約における利益と約束とに基づき、京都議定書の発効のいかんにかかわらず緊急に国際的な支持と対策を得るのに十分な強制力を持つアプローチを確立している。

[i] http://www.gci.org.uk
[ii] http://www.gci.org.uk/model/dl.html
[iii] http://www.gci.org.uk/images/CC_Demo(pc).exe
[iv] http://www.gci.org.uk/images/C&C_Bubbles.pdf
[v] http://www.feasta.org
[vi] http://www.rcep.org.uk/pdf/chp4.pdf
[vii] http://www.wbgu.de/wbgu_sn2003_engl.pdf
[viii] http://www.gci.org.uk/Archive/1989_2004
[ix] http://www.gci.org.uk/consolidation/Sasakawa.pdf
[x] http://www.gci.org.uk/papers/zew.pdf [付属書C、16ページ]
[xi] http://www.gci.org.uk/temp/COP3_Transcript.pdf
[xii] http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
[xiii] http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [27～32ページ]









C&C
"Contraction and Convergence

http://www.gci.org.uk/translations/CandC_Statement(Turkish).pdf

[TURKISH TEXT]

1. Contraction and Convergence (C&C), Global Zenginlikler Enstitüsü (GCI) tarafından 1999'dan beri Birleşmiş Milletlere (UN) teklif edilen, bilim tabanlı global iklim politikası çevresidir.

2. Birleşmiş Milletler İklim Değişikliği Çevre Antlaşması'nda (UNFCCC) daha önce kabul edildiği gibi, atmosferdeki sera gazlarının, güvenli ve dengeli konsantrasyonlarına ulaşma ve önceden önlem alma ve hakkaniyet ilkeleri amaçları, aşağıdakileri teklif eden C&C çevresinin resmi hesap temellerini oluşturmaktadır.
   * IPCC WG1 karbon döngü modelini izleyerek (GCI, 450 ppmv CO_2 yayımını güvenli değil olarak kabul etmektedir) sera gazlarının atmosferik konsantrasyonlarını, daha önce güvenli olarak kabul edilmiş azami konsantrasyon seviyesinde stabilize etme düşüncesiyle tutarlı, tam zamanlı bir global sera gazı yayımı planı.
   * Tam zamanlı kısıtlama planında kabul edilen tarihte, global olarak, akdolunabilir doğrusal yakınlaşma sonucu, kişi başına hesaplanarak bu plan uluslararası alanda paylaşılır. GCI şunları teklif etmektedir: 1) Ya- kınlaşmanın tamamlanması için 2030 veya 2040 yılı, yada 100 yıllık bir planın 1/3'ü kadar içinde bir zaman ve 2) C&C programında yer alan nüfus tabanlı bir yılın kabulü
   * UNFCCC'de bu konuda yapılacak müzakereler, temel olarak dünya bölgeleri arasında yapılmalı ve ülkeler arası müzakereler (örn. Avrupa Birliği, Afrika Birliği ve ABD gibi) söz konusu bölgelere bırakılmalıdır.
   * Elde dilen hakların bölgeler arası, uluslararası ve yurt içi değişimi için Uluslararası Enerji Destekli Para Birimi'nin (EBCU) kullanımı teşvik edilmelidir.
   * Zararlı gazları yaymayan ekonomiler ve bu gazların konsantrasyonu arasındaki bilimsel anlayış geliştikçe, periyodik düzenlemeler gözetimi altında C&C'nin tayin ettiği oranlar değiştirilebilir.

3. Şu anda global topluluk, kaçınabildiğinden daha fazla, tehlikeli iklim değişikliğine neden olmaktadır. Uluslararası diplomatik mücadele bunu önlemektir. C&C'nin amacı, bu hedefi gerçekleştirmektir. C&C, dengeli iklim senaryolarının hesaplamalarını yaparak, ve müzakere yolu ile bunları paylaşarak, tehlikeli global iklim değişikliklerinden kaçınmayı sağlayacak uluslararası politika ve önlemlerin organize edilmesini sağlamaktadır.

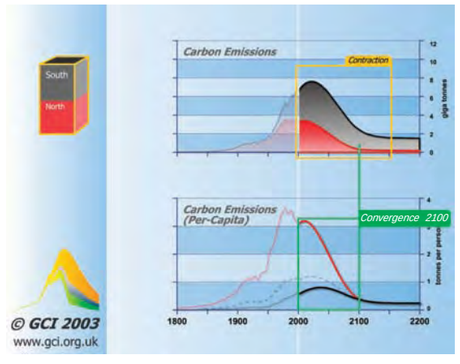
4. Sera gazları (GHG) yayımı bugüne kadar hep ekonomik performans ile ilişkilendirilmiştir. Günümüze kadar, ekonomilerin bu büyümesi ve GHG yayımı, daha çok endüstriyel ülkelerde olmuş ve yakın bir zamanda, ekonomik olmayan bir genişlemenin (expansion) ve uzaklaşmanın (divergence) [E&D] yanı sıra, çevresel dengesizlik ve uluslararası güvensizlik yaratmıştır.

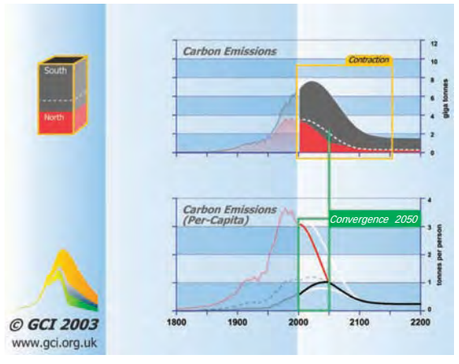
5. C&C'nin bu konudaki yanıtı, kısa dönemli ve tahmini olmaktan çok, tam zamanlı ve yapısaldır. Bu konuda, atalet halindeki artan konsantrasyon karşısında "tarihi sorumluluk meselesi"ni ele alarak, bunu yeni yeni endüstrileşen ülkeler için bir kalkınma imkanı masrafı olarak tanımlamıştır. C&C, gelecekte elde edilecek, bu, alınıp satılabilir olduğu için değerli olan GHG yayma haklarının uluslararası dağıtımını sağlamakta ve global antlaşmalarla kabul edilen kısıtlamalara (contraction) göreceli olarak, kasıtlı olarak hızlandırılan bir yakınlaşma (convergence) oranından kaynaklanmasını istemektedir. (bkz. şekiller)

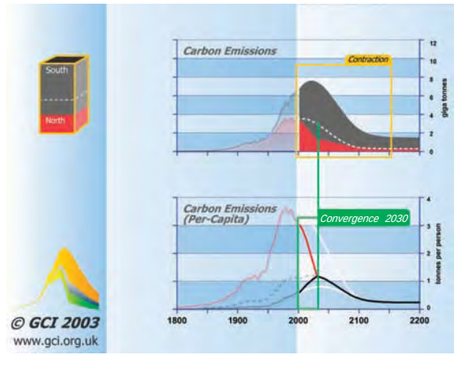
6. İngiltere'nin Çevresel Kirlenme ile İlgili Kraliyet Komisyonu (UK's Royal Commission on Environmental Pollution) ve Almanya'nın Global Değişim Danışma Konseyi (German Advisory Council on Global Change) , resmi C&C'ye dayanarak, iklim değişikliği konusundaki tavsiyelerini hükümetlere sunmaktadır. C&C'yi destekleyen sayısız kişisel ve kurumsal ifade kayda geçmiştir. Afrika Milletler Topluluğu (Afrika Group of Nations) bunu 1997'de UNFCCC'ye teklif etmiştir. Bu husus ilke olarak COP-3 Kyoto 1997'de kabul edilmiştir. C&C aynı yıl ABD Senatosu'nun onayladığı Byrd Hagel Önergesi'nin taleplerine uymaktadır ve 1998 Avrupa Parlamentosu C&C lehine bir önergeyi kabul etmiştir.

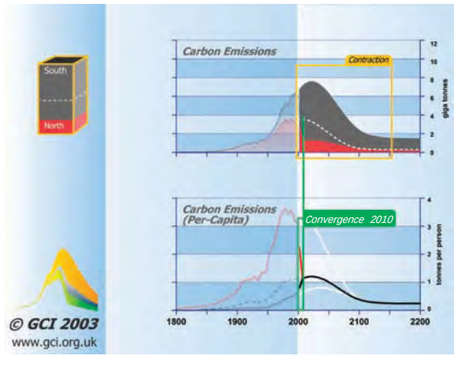
7. C&C'nin bu sentezi, global iklim değişimi dengesizliklerinin bu yönelimini ıslah edebilir düzeydedir. Global haklar, kaynakların korunması ve kendi kendine yeten sistemler üzerine kurulan dengeli bir C&C, global ekonomiyi güvenli ve adaletli bir geleceğe yöneltmek için artık gereklidir. C&C, Kyoto Protokolü uygulansın veya uygulanmasın, Birleşmiş Milletler Antlaşmalarının kazançları ve taahhütleri üzerine yapılanmakta ve acil uluslararası desteği harekete geçirecek kadar zorlayıcı bir yaklaşımı oluşturmaktadır.

i	http://www.gci.org.uk
ii	http://www.gci.org.uk/model/dl.html
iii	http://www.gci.org.uk/images/CC_Demo(pc).exe
iv	http://www.gci.org.uk/images/C&C_Bubbles.pdf
v	http://www.feasta.org
vi	http://www.rcep.org.uk/pdf/chp4.pdf
vii	http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii	http://www.gci.org.uk/Archive/1989_2004
ix	http://www.gci.org.uk/consolidation/Sasakawa.pdf
x	http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi	http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii	http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii	http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]









C&C

"Contraction and Convergence

http://www.gci.org.uk/translations/CandC_Statement(Swahili).pdf

[SWAHILI TEXT]

1. Upungufu na Ukaribiano "Contraction and Convergence" (C&C) ni sayansi iliyo na msingi kutoka kwa maongozi ya hewa ulimwenguni yaliyo azimiwa na Global Commons Institute (GCI) kwa Umoja wa Mataifa tangu 1990. i ii iii iv

2. Lengo la gesi ya nyumba ya kijani (Greenhouse) katika anga na kanuni za upingaji na uadilifu, kama ilivyo kubaliwa katika Mkataba wa Umoja wa Mataifa juu ya Mabadiliko ya Hali ya Hewa (United Nations Framework Convention on Climate Change - UNFCCC), zinaandaa msingi ya kukadiri C&C. Msingi huu unaazimia:-

   * Kipeto kilichokomaa cha uzalishaji wa gesi kinalainika na kusawazisha mkusanyo wa gesi (greenhouse gases (GHGs)) angani. Ili mkusanyo huu uwe katika kiwango kinacho kubaliwa kuwa ni salama, kwa kufuatia mfano wa carbon wa IPCC WG1. [GCI ina hesabu kiwango juu ya 450 ppmv CO2 kutokuwa salama].
   * Kugawanya kipeto hiki kati ya mataifa kinaonekana kuwa ni haki, kina sababishwa na kupatikana kwa kima cha mstari uliokaribiana na vipande kwa kila mtu duniani kwa wakati unaofaa kukomaa kwa mkataba wa upungufu/mkusanyo. [GCI inadokeza [1] mwaka 2030 au 2040, au karibu na thuluthi ya kipeto cha miaka 100. Kwa mfano, kwa kumaliza ukaribiano [ona alama 5 na picha 1 & 2 ifuatayo] na [2] zinazo onyesha msingi wa umma katika ratiba ya C&C inakubaliwa].
   * Majadialiano ya mambo haya katika UNFCCC yanafanyika hasa kati ya sehemu za dunia, kwa hivyo yanaacha majadiliano yawe kati ya nchi zilizopo katika sehemu hizi, kama Muungano wa Ulaya, Umoja wa Nchi za Afrika, Amerika na kadhalika.
   * Kustahilisha biashara kati ya sehemu, taifa, na nchi kwa fedha inayofaa kama Nguvu Ya Kimataifa Ya Kudhamini Fedha International Energy Backed Currency Units [EBCUs] v inabidi iendelezwe.
   * Uelewaji wa kisayansi wa uhusiano kati ya iktisadi isiyokuwa-na-uzalishaji-wa-gesi na mkusanyo unaoendelezwa, ili viwango vya C&C vidhihirike ndani ya marejeo.

3. Kwa wakati huu, jumuia ya ulimwengu inaendelea kutoa mabadiliko hatari ya hewa upesi kuliko inavyo simamia kuyaepuka. Mwito wa usuluhivu wa kimataifa ni kugeuza hili tatizo. Nia ya C&C ni kusababisha mwito huu. Inawezesha hali ya hewa salama ihesabiwe na ifikiriwe katika majadiliano ili maongozi na hatua zichukuliwe kimataifa kwa viwango vitakavyoepusha mabadiliko hatari ya hewa.

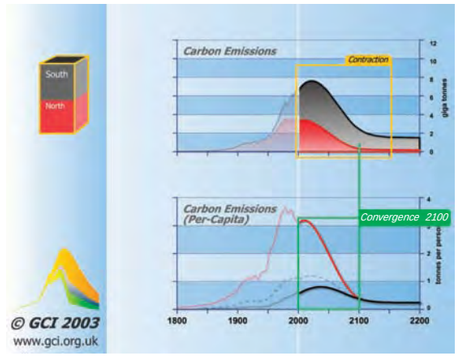
4. Uzalishaji wa gesi GHG imehusiana na matekelezo ya iktisadi. Kwa sasa, ukuaji wa iktisadi na uzalishaji wa gesi upo hasa katika nchi zilizoendelea, kwa hivyo vinaunda mfano wa kuongezeka kwa iktisadi usiyofaa na mazingira yasiyofaa.

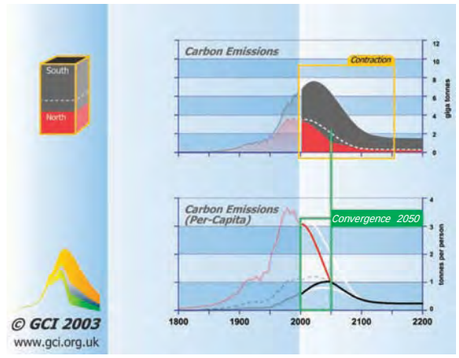
5. Jibu la C&C kwa jambo hili ni muda mrefu na halali, na sio muda mfupi na ovyoovyo. Jibu hii inajaribu kusuluhisha majadiliano ya muda mrefu kuhusu ni nani aliyesababisha nyongeza la gesi hizi. Inajaribu kubaini kuwa nyongeza la gesi hii ni gharama ya lazima inayolipwa na nchi zinazoendelea.. C&C inawezesha ugawanyaji wa biashara na kutoa kiwango cha gesi kinacho lingana na upungufuu uliokubaliwa [angalia picha.2].

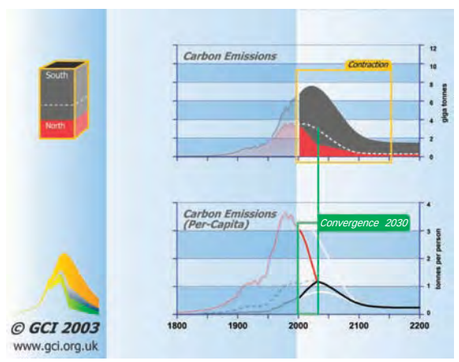
6. Jumuia ya uchafu wa mazingira ya Uingerezavi na Jumuia ya mabadiliko ya hali ya hewa ya Ujerumani vii, yote yanatoa mapendekezo kwa serekali kuhusu C&C. Watu wengi na taasisi wametoa maandiko kuauni C&C na imerekodiwa. viii ix Kikundi cha mataifa ya Afrika waliazimu kwa UNFCCC mwaka 1997 na kilikubaliwa katika COP-3 Kyoto 1997. xi C&C inajilainisha na mahitaji ya azimio ya Byrd Hagel ya baraza ya Amerika ya mwaka huo xii na bunge la Ulaya ilipitisha azimio kuendeleza C&C mwaka 1998 xiii .

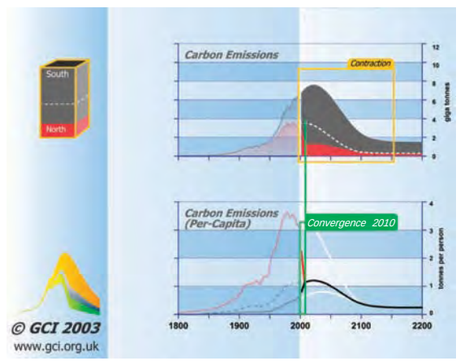
7. Kufanyiza kwa C&C inaweza kurekebisha hatari inayotokana na mabadiliko ya hewa ulimwengni. C&C imejengwa kwa haki za ulimwengu, uhifadhi wa mali na utaratibu unaotegemewa. Kwa hivyo utaratibu wa C&C unatakikana kuongoza ikistadi kwa wakati ujao ulio salama na adili. Itajenga kwa faida na ahadi za Umoja wa mataifa na kustawisha njia iliyo na nguvu ya kupata mategemeo na hatua kutoka kwa mataifa, kuwa na kutokuwa na mshawishi ya Kyoto Protocol.

i	http://www.gci.org.uk
ii	http://www.gci.org.uk/model/dl.html
iii	http://www.gci.org.uk/images/CC_Demo(pc).exe
iv	http://www.gci.org.uk/images/C&C_Bubbles.pdf
v	http://www.feasta.org
vi	http://www.rcep.org.uk/pdf/chp4.pdf
vii	http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii	http://www.gci.org.uk/Archive/1989_2004
ix	http://www.gci.org.uk/consolidation/Sasakawa.pdf
x	http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi	http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii	http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii	http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]









C&C

"Contraction and Convergence

http://www.gci.org.uk/translations/CandC_Statement(Russian).pdf **[RUSSIAN TEXT]**

1. "Сокращение и конвергенция" (СК) [C&C]- это разработанная на научной основе структура глобальной политики в области климата, предложенная Организации Объединенных Наций с 1990 года Институтом общего достояния человечества (ИОДЧ).i ii iii iv

2. Задача достижения безопасной и стабильной концентрации парникового газа в атмосфере и принципы осторожности и справедливости, как это уже согласовано в "Рамочной конвенции Организации Объединенных Наций об изменении климата" (РКООНИК), обеспечивают официальную расчетную основу структуры СК, которая предлагает:

   * Долгосрочный бюджет сокращения глобальных выбросов, отвечающий требованиям по стабилизации концентрации в атмосфере парниковых газов (ПГ) на уровне заранее согласованной максимальной концентрации, которая считается безопасной после моделирования круговорота углерода, проведенного рабочей группой РГ1 МГЭИК. [ИОДЧ считает, что концентрация CO_2 свыше 450 частей на миллион объема является "небезопасной"].
   * Международное распределение этого бюджета в виде "прав" является результатом могущей быть переуступленной нормы линейной конвергенции на равные доли на человека по всему миру к согласованной дате в рамках плана-графика долгосрочного договора о сокращении/концентрации. [ИОДЧ предлагает [1] 2030 или 2040 год или примерно третью часть бюджета на 100 лет, например, в отношении конвергенции для завершения [смотрите пункт 5 и снимки 1 и 2 ниже], и [2] что год на базе населения в графике СК согласован].
   * Переговоры относительно этого в РКООНИК должны вестись главным образом между различными регионами мира, оставив проведение переговоров между отдельными странами главным образом внутри их соответствующих регионов, таких как Европейский Союз, Африканский Союз, США и т.д.
   * Должна поощряться межрегиональная, межгосударственная и внутригосударственная реализуемость этих прав в соответствующей валюте, такой как международные валютные единицы, обеспеченные энергией [ВЕОЭ] v.
   * Научное понимание взаимосвязи между экономикой без выбросов и концентрациями развивается, поэтому нормы СК могут меняться в результате периодически проводимых пересмотров.

3. В настоящее время всемирное сообщество продолжает создавать опасные климатические изменения быстрее, чем принимает меры с целью не допустить их. Задача международной дипломатии – изменить такую ситуацию. Целью СК является сделать это возможным. Она дает возможность рассчитать и распределить путем переговоров различные сценарии для обеспечения безопасного климата с тем, чтобы можно было провести в мировом масштабе организационные мероприятия по разработке стратегий и мер на уровне, который бы дал возможность не допустить опасного глобального изменения климата.

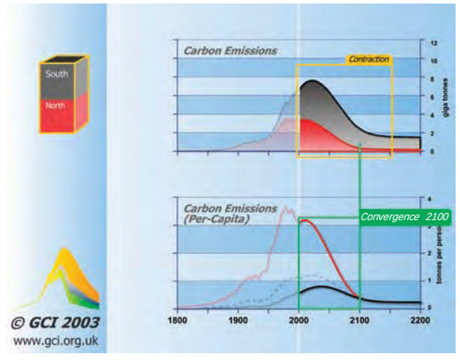
4. Выбросы парниковых газов до сих пор тесно привязывались к результатам экономической деятельности. По состоянию на сегодняшний день этот рост экономики и выбросы имели место в основном в промышленно развитых странах, в результате чего в последнее время образовалась глобальная структура все возрастающей неэкономической экспансии и дивергенции [ЭД], экологического дисбаланса и ненадежности международного положения.

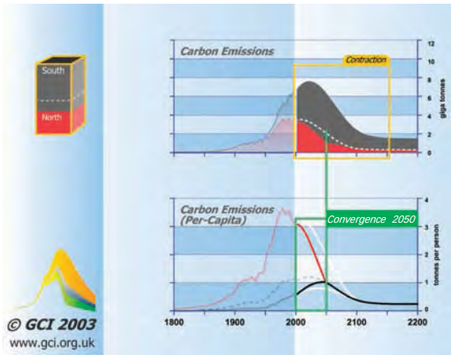
5. Ответ СК на это является долгосрочным и органическим, а не рассчитанным на краткосрочную перспективу и стохастическим. В нем рассматривается порожденный инерцией мышления аргумент относительно "исторической ответственности" за повышающуюся концентрацию, считая его альтернативными издержками развития новых индустриализующихся стран. СК открывает возможности международного предварительного распределения этих реализуемых и в этой связи ценных будущих прав на выброс ПГ в результате нормы конвергенции, которая преднамеренно ускорена по сравнению с согласованной глобальной нормой сокращения [смотрите рисунок 2].

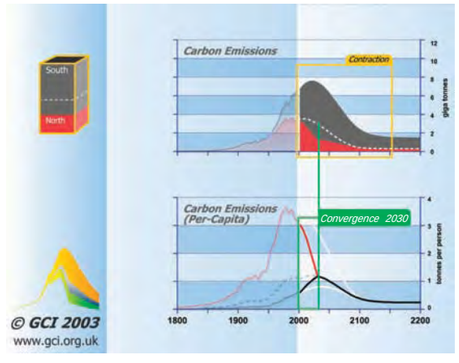
6. Как Королевская комиссия Великобритании по загрязнению окружающей средыvi, так и Консультативный совет Германии по глобальным изменениямvii представляют свои рекомендации по изменению климата правительствам с точки зрения официального СК. Были занесены в протокол многочисленные индивидуальные и поступившие от различных организаций заявления в поддержку СК.viii ix Африканская группа наций официально предложила ее РКООНИК в 1997 году.x Она была в принципе согласована на COP-3 (3-я конференция участников) в Киото в 1997 году.xi СК подчиняется требованиям Резолюции Берта-Хагеля Сената США того же года xii , и Европейский парламент принял резолюцию в пользу СК в 1998 году.xiii

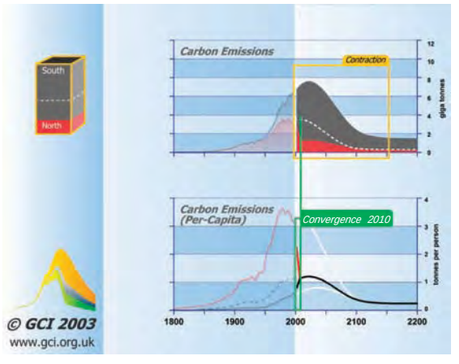
7. Этот синтез СК может исправить все возрастающую опасную тенденцию нарушения баланса глобального климатического изменения. Стабильная система СК, разработанная на основе глобальных прав, рационального использования природных ресурсов и устойчивых систем, в настоящее время нужна для того, чтобы направлять экономику по пути безопасного и справедливого будущего в интересах всех людей. Она построена на основе поступлений и обещаний Конвенции ООН, и в результате создаются основы подхода, который в достаточной степени гальванизирует срочную международную поддержку и действия, независимо от того, вступит ли Киотский протокол в силу или нет.

i	http://www.gci.org.uk
ii	http://www.gci.org.uk/model/dl.html
iii	http://www.gci.org.uk/images/CC_Demo(pc).exe
iv	http://www.gci.org.uk/images/C&C_Bubbles.pdf
v	http://www.feasta.org
vi	http://www.rcep.org.uk/pdf/chp4.pdf
vii	http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii	http://www.gci.org.uk/Archive/1989_2004
ix	http://www.gci.org.uk/consolidation/Sasakawa.pdf
x	http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi	http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii	http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii	http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]









C&C
"Contraction and Convergence

http://www.gci.org.uk/translations/CandC_Statement(Portuguese).pdf **[PORTUGUESE TEXT]**

1. "Contracção e Convergência" (C&C) é o enquadramento global de políticas climáticas com base científica proposto às Nações Unidas a partir de 1990 pelo Global Commons Institute (GCI).i ii iii iv

2. O objectivo das concentrações dos gases de efeito de estufa seguras e estáveis na atmosfera e os princípios da precaução e da equidade, conforme já acordado na "United Nations Framework Convention of Climate Change" (UNFCCC), proporcionam a base de cálculo formal do enquadramento da C&C que propõe: -

   * Uma quota de contracção a longo prazo das emissões globais consistente com a estabilização das concentrações dos gases de efeito de estufa (CFCs) na atmosfera a uma concentração máxima considerada segura previamente acordada, segundo o modelo do ciclo do carbono IPCC WG1. [O GCI considera uma taxa de CO_2 superior a 450 ppmv equivalente a 'não segura'].
   * A partilha internacional desta quota sob a forma de "créditos" resulta de uma taxa negociável de convergência linear que iguala globalmente as quotas por pessoa, até uma data limite acordada, dentro do prazo do acordo de contracção/concentração. [O GCI sugere [1] o ano de 2030 ou 2040, ou cerca de um terço do percurso até uma quota de 100 anos, por exemplo, para a conclusão da convergência [ver ponto 5 e imagens 1 e 2 a seguir] e [2] que seja acordado um calendário de C&C de um ano com base na população].
   * As negociações para este fim no âmbito da UNFCCC devem ocorrer principalmente entre as regiões do mundo, deixando à partida as negociações entre os países dentro das suas regiões respectivas, tais como a União Europeia, a União Africana, os EUA, etc.
   * A possibilidade de negociação inter-regional, internacional e intranacional destes créditos numa moeda adequada, tal como as International Energy Backed Currency Units [EBCUs] v deve ser incentivada.
   * O conhecimento científico da relação entre uma economia livre de emissões e as concentrações está a desenvolver-se, pelo que as taxas de C&C podem evoluir com base numa revisão periódica.

3. Actualmente, a comunidade global continua a gerar alterações climáticas perigosas a um ritmo mais rápido do que aquele a que se organiza para evitá-las. O desafio da diplomacia internacional é o de inverter esta tendência. O objectivo da C&C é tornar isto possível, ao permitir que cenários para um clima mais seguro sejam calculados e partilhados através de negociações, de modo a que as políticas e medidas sejam organizadas a nível internacional a taxas que evitem alterações climáticas globais perigosas.

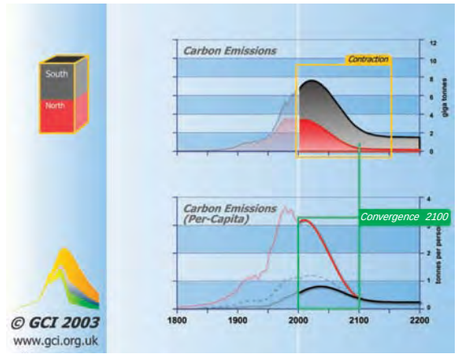
4. Até ao momento, as emissões de CFCs têm estado intimamente relacionadas com o desempenho económico. Até à data, este crescimento das economias e das emissões tem ocorrido maioritariamente nos países industrializados, tendo criado recentemente um padrão global cada vez maior de expansão e divergência [E&D] não económica, de desequilíbrio ambiental e de insegurança internacional.

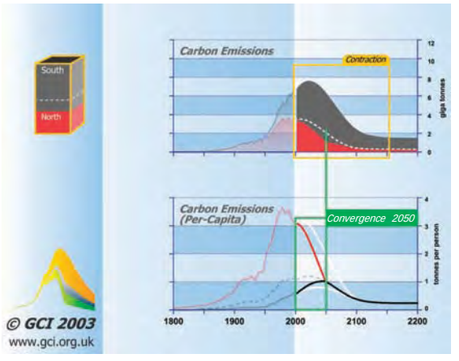
5. A resposta C&C a esta situação é a longo prazo e constitucional e não a curto prazo e estocástica. Debruça-se sobre o argumento paralisante das "responsabilidades históricas" para o aumento das concentrações, reconhecendo esta como uma oportunidade de desenvolvimento para os países recém industrializados. A C&C permite uma distribuição internacional prévia destes créditos futuros negociáveis e, por conseguinte, valiosos para a emissão de CFCs, de forma a resultarem numa taxa de convergência que é deliberadamente acelerada em comparação com a taxa global de contracção acordada [ver imagem 2].

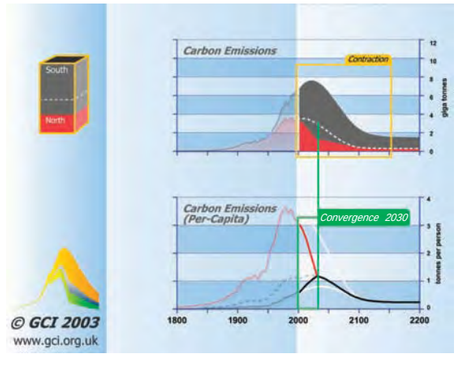
6. A Real Comissão sobre a Poluição Ambientalvi do Reino Unido e o Conselho sobre as Alterações Globaisvii da Alemanha fazem recomendações sobre as alterações climáticas aos respectivos governos em termos de C&C formais. Foram registados numerosas declarações individuais e institucionais apoiando a C&C.viii ix O Grupo de Nações Africanas propôs formalmente a C&C à UNFCCC em 1997.x Houve um acordo de princípio na COP-3 de Quioto de 1997.xi A C&C está em conformidade com os requisitos da Resolução Byrd Hagel do Senado dos Estados Unidos desse ano xii e o Parlamento Europeu votou uma resolução a favor da C&C em 1998.xiii

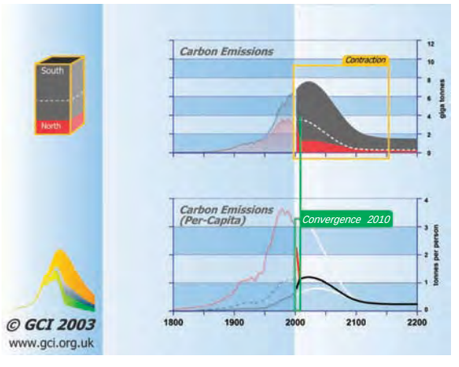
7. Esta síntese da C&C pode corrigir as alterações climáticas globais que provocam desequilíbrios cada vez mais perigosos. Baseado em direitos globais, conservação de recursos e sistemas sustentáveis, um sistema de C&C estável é agora necessário para conduzir a economia para um futuro seguro e equitativo para todos. Ganha força nos avanços e nas promessas da Convenção das Nações Unidas e estabelece uma abordagem suficientemente atractiva para galvanizar o apoio e a acção internacionais urgentes, estando o Protocolo de Quioto em vigor ou não.

i	http://www.gci.org.uk
ii	http://www.gci.org.uk/model/dl.html
iii	http://www.gci.org.uk/images/CC_Demo(pc).exe
iv	http://www.gci.org.uk/images/C&C_Bubbles.pdf
v	http://www.feasta.org
vi	http://www.rcep.org.uk/pdf/chp4.pdf
vii	http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii	http://www.gci.org.uk/Archive/1989_2004
ix	http://www.gci.org.uk/consolidation/Sasakawa.pdf
x	http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi	http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii	http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii	http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]









C&C
"Contraction and Convergence

http://www.gci.org.uk/translations/CandC_Statement(Italian).pdf

[ITALIAN TEXT]

1. "Contrazione e Convergenza" (C&C) è il quadro globale della politica sul clima, basata sulla scienza climatica, proposto alle Nazione Unite dal 1990, dal Global Commons Institute (GCI).(i ii iii iv)

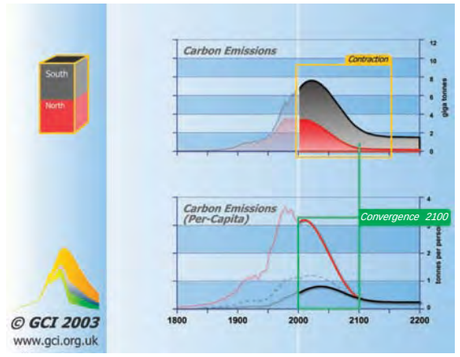
2. L'obiettivo di ottenere concentrazioni di gas serra sicure e stabili nell'atmosfera ed i principi di precauzionalità e di equità come già stabilito nella "Convenzione Quadro delle Nazioni Unite sul Cambiamento del Clima" (UNFCCC), forniscono la base di calcolo dello schema formale C&C, che propone:
   * Un budget di contrazione completo per le emissioni globali, che sia compatibile con la stabilizzazione delle concentrazioni di gas serra (GHGs) nell'atmosfera a una concentrazione massima prestabilita e riconosciuta come sicura, in conformità con la modellizzazione del ciclo del carbonio IPCC WG1. [Il GCI considera livelli di CO2 superiori a 450 ppmv equivalenti ad uno standard "non-sicuro"].
   * La ripartizione internazionale di questo budget come "assegnazioni" si ricava da un tasso negoziabile che converge linearmente ad assegnazioni pro capite uguali fra loro, entro una data convenuta fissata all'interno dei tempi previsti dall'accordo globale sulla contrazione [riduzione] delle concentrazione di gas serra. [Il GCI suggerisce [1] l'anno 2030 oppure 2040, o a circa un terzo del tempo in un budget di una durata di 100 anni, [per esempio], affinché la convergenza sia raggiunta [vedi punto 5 e figure 1 & 2 sotto] e [2] che un anno di riferimento per il livello della popolazione mondiale sia concordato all'interno della tempistica C&C.
   * I negoziati per raggiungere detti scopi presso la UNFCCC dovrebbero, principalmente, aver luogo tra le diverse regioni del mondo, lasciando le negoziazioni tra i paesi primariamente tra le loro rispettive regioni, come ad esempio: Unione Europea, Unione Africana, Stati Uniti, etc.
   * La commerciabilità di dette assegnazioni interregionali, internazionali e domestiche in una appropriata valutà - come per esempio le Unità di Valuta Internazionali basate sull'Energia [EBCUs - Energy Backed Currency Units] v – dovrebbe essere incoraggiata.
   * La comprensione scientifica della relazione tra una economia libera da emissioni e la concentrazione di gas serra è in pieno sviluppo, per cui i tassi di contrazione e convergenza possono evolvere sotto revisione periodica di appositi corpi sussidiari scientifici della Convenzione C&C.

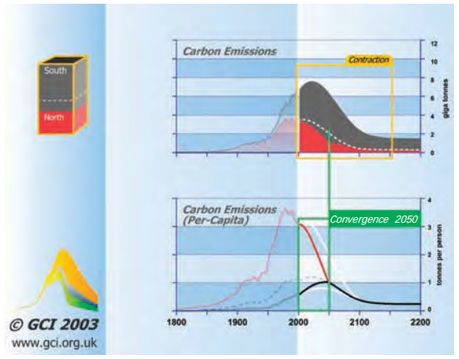
3. Al momento, la comunità mondiale continua a causare cambiamenti climatici pericolosi più rapidamente di quanto fa per tentare di evitarli. "La sfida diplomatica internazionale è quella di rovesciare questa tendenza. L'obiettivo della C&C è di renderlo possibile. Lo schema C&C permette di calcolare scenari per un clima sicuro e di condividerli tramite negoziazione. In questa maniera azioni politiche e altre misure possono essere organizzate a livello internazionale a ritmi tali da evitare cambiamenti climatici globali pericolosi.
4. Le emissioni di gas serra (GHG) sono state finora messe in stretta correlazione con la crescita economica. A tutt'oggi, questo collegamento tra crescita economica ed emissioni avviene principalmente nei paesi industrializzati, causando negli ultimi decenni una "espansione e divergenza" (E&D) crescentemente antieconomica, uno squilibrio ambientale e un' insicurezza internazionale.

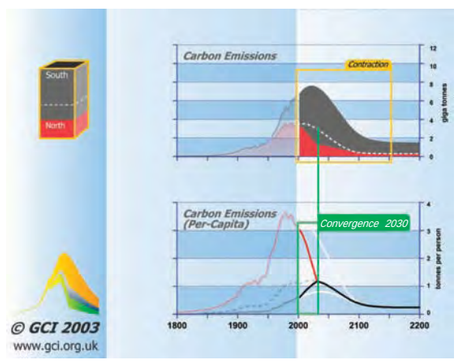
5. La risposta del C&C a ciò è completa e costituzionale, invece che di breve periodo e caotica. Si rivolge alla questione "inerziale" sulle "responsabilità storiche" per l'aumento delle concentrazioni, riconoscendo come la C&C permette una opportunità di sviluppo per i paesi di recente industrializzazione. La C&C permette una predistribuzione internazionale di queste assegnazioni di quote di emissioni future di gas serra commerciabili e quindi dotate di valore economico e preziose per il futuro. Tali assegnazioni di quote di emissione si calcolano da un tasso di convergenza che è deliberatamente accelerato rispetto al convenuto tasso globale di contrazione. [vedi figura 2 e 3].

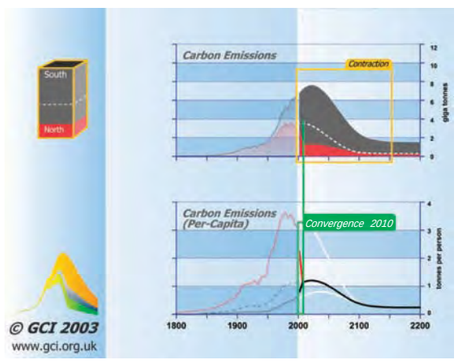
6. La Commissione Reale per l' Inquinamento Ambientale del Regno Unito vi e il Consiglio Consultivo del governo tedesco sui Cambiamenti Globali vii fanno entrambi le loro raccomandazioni ai governi riguardo ai cambiamente climatici, seguendo proprio una schema di Contrazione e Convergenza. Numerose dichiarazioni individuali e di istituzioni sono state emesse a supporto del C&C.viii ix Il "gruppo delle Nazioni Africane" ha formalmente proposto queste azioni durante la Conferenza delle Parti (COP) UNFCCC del 1997.x Questo concetto è stato concordato come principio durante la COP3 di Kyoto 1997.xi La "C&C si conforma alle richieste della Risoluzione Byrd-Hagel'* del Senato statunitense nello stesso anno.xii II Parlamento Europeo "ha deliberato a favore del C&C nel 1998. xiii
7. Questa sintesi della C&C è in grado di rimediare alla tendenza pericolosamente in aumento di creare squilibri nel cambiamento climatico globale. Costituito sui diritti globali, sulla preservazione delle risorse e sui sistemi sostenibili, ora serve uno stabile sistema C&C per guidare l'economia verso un futuro sicuro e d'uguaglianza per tutti. Questo sistema viene costruito sui fondamenti e sulle promesse della Convenzione Climatica delle Nazioni Unite e stabilisce un approccio sufficientemente convincente a stimolare urgenti elementi di sostegno ed azioni internazionali, con o senza l'entrata in vigore del protocollo di Kyoto superando tra l'altro i suoi evidenti limiti temporali e l'estrema esiguitá del suo intervento di riduzione delle emissioni. [C&C riduce le emissioni di almeno il 60% come richiesto dai calcoli scientifici della comunità scientifica internazionale, mentre Kyoto le riduce del solo 5% del soli paesi industrializzati].

i	http://www.gci.org.uk
ii	http://www.gci.org.uk/model/dl.html
iii	http://www.gci.org.uk/images/CC_Demo(pc).exe
iv	http://www.gci.org.uk/images/C&C_Bubbles.pdf
v	http://www.feasta.org
vi	http://www.rcep.org.uk/pdf/chp4.pdf
vii	http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii	http://www.gci.org.uk/Archive/1989_2004
ix	http://www.gci.org.uk/consolidation/Sasakawa.pdf
x	http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi	http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii	http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii	http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]









C&C
"Contraction and Convergence

http://www.gci.org.uk/translations/CandC_Statement(French).pdf

[FRENCH TEXT]

1. Le programme « Contraction et Convergence » (C&C) est le cadre d'action sur le climat mondial à fondement scientifique proposé aux Nations Unies depuis 1990 par le Global Commons Institute (GCI). i ii iii iv

2. La mise en place de concentrations inoffensives et stables de gaz à effet de serre dans l'atmosphère et les principes de précaution et d'équité tels qu'ils ont déjà été convenus dans la "Convention cadre des Nations Unies sur le changement climatique" (UNFCCC) servent de base de calcul officiel au programme C&C qui propose: -

   * Un budget de contraction à long terme pour les émissions mondiales, qui stabiliserait les concentrations atmosphériques de gaz à effet de serre (GES) à une concentration maximum convenue à l'avance et considérée comme inoffensive, conformément à la modélisation du cycle du carbone IPCC WG1. [GCI considère qu'un taux dépassant l'équivalent de 450 ppmv de CO_2 va au-delà du seuil de sécurité].
   * Le partage international de ce budget sous forme de « droits » provient d'un taux de convergence linéaire négociable correspondant à des parts égales par personne pour tous les individus du monde d'ici à une date convenue dans le calendrier de l'accord de contraction/ concentration à long terme. [Le GCI suggère comme année de convergence [1] l'année 2030 ou 2040, ou une durée située à un tiers d'un budget de 100 ans par exemple [voir point 5 et images 1 & 2 ci-dessous] et [2] de convenir une année de référence pour la population dans le programme C&C].
   * Les négociations à ce sujet à l'UNFCCC devraient avoir lieu principalement entre les régions du monde, laissant les négociations entre pays se dérouler essentiellement au sein de leurs régions respectives comme l'Union européenne, l'Union africaine, les USA, etc.
   * La négociabilité inter-régionale, inter-nationale et intra-nationale de ces droits dans une devise appropriée comme les unités de devise internationales gagées sur l'énergie [EBCU] v devrait être encouragée.
   * L'évolution des connaissances scientifiques sur les rapports entre une économie sans émissions et les concentrations permet de modifier les taux de C&C dans le cadre d'une révision périodique.

3. Actuellement, la communauté mondiale continue à générer des changements climatiques dangereux plus rapidement qu'elle s'organise pour les éviter. Le défi diplomatique international consiste à inverser cette tendance. L'objectif du programme C&C est d'y parvenir. Il permet de calculer et partager des scénarios pour un climat sans danger par le biais de la négociation afin de pouvoir organiser des politiques et mesures sur le plan international à des taux qui évitent les changements climatiques mondiaux dangereux.

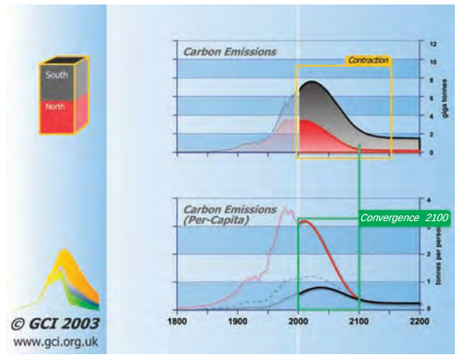
4. Jusqu'ici les émissions de GES ont été associées de près aux performances économiques. A ce jour, cette croissance des économies et émissions a concerné essentiellement les pays industrialisés, créant récemment un schéma mondial d'expansion et de divergence [E&D] de moins en moins économique, un déséquilibre environnemental et une insécurité sur le plan international.

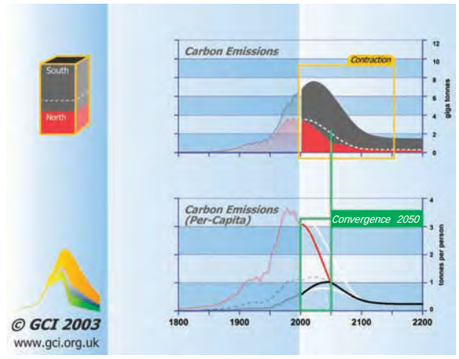
5. La réponse du programme C&C à ce problème est une solution constitutionnelle à long terme plutôt qu'une solution stochastique à court terme. Il adresse l'argument générateur d'inertie sur les « responsabilités historiques » auquel on a recours pour expliquer l'accroissement des concentrations en l'identifiant comme un coût d'opportunité de développement pour les pays nouvellement industrialisés. Le programme C&C permet à une prédistribution internationale de ces droits futurs négociables et donc précieux d'émettre des GES, de résulter d'un taux de convergence qui est délibérément accéléré par rapport au taux de contraction mondial convenu [voir image 2].

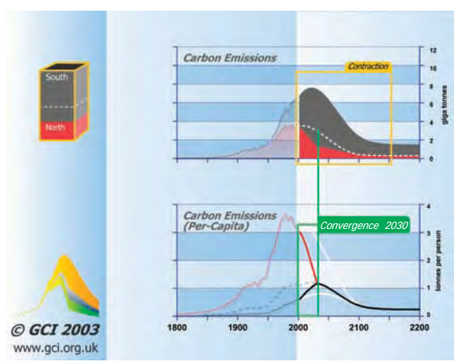
6. La Royal Commission on Environmental Pollution vi (Commission royale sur la pollution environnementale) du Royaume-Uni et le Conseil consultatif allemand sur le Changement mondialvii ont tous deux faits leurs recommandations sur le changement climatique aux gouvernements sous forme d'un programme C&C formel. De nombreuses déclarations individuelles et institutionnelles en faveur du programme C&C ont été rendues publiques.viii ix L'Africa Group of Nations (le groupe africain des nations) l'a officiellement proposé à la UNFCCC en 1997.x Ses principes ont été acceptés à COP-3 à Kyoto en 1997.xi Le programme C&C est conforme aux exigences de la Byrd Hagel Resolution (Résolution Byrd Hagel) du Sénat américain de 1997 xii et le Parlement européen a voté une résolution en faveur du programme C&C en 1998.xiii

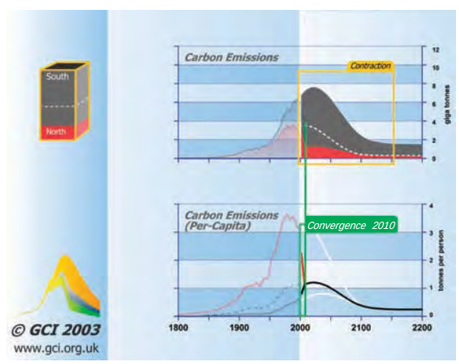
7. Cette synthèse de la C&C peut rectifier la tendance de plus en plus dangereuse aux déséquilibres dans le changement climatique mondial. Basé sur les droits mondiaux, la préservation des ressources et les systèmes durables, un système de C&C stable est maintenant nécessaire afin de guider l'économie vers un avenir sûr et équitable pour tous. Il met à profit les acquis et les promesses de la Convention de l'ONU et établit une démarche suffisamment attrayante pour stimuler une aide et une action internationales urgentes, que le Protocole de Kyoto entre ou non en vigueur.

i	http://www.gci.org.uk
ii	http://www.gci.org.uk/model/dl.html
iii	http://www.gci.org.uk/images/CC_Demo(pc).exe
iv	http://www.gci.org.uk/images/C&C_Bubbles.pdf
v	http://www.feasta.org
vi	http://www.rcep.org.uk/pdf/chp4.pdf
vii	http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii	http://www.gci.org.uk/Archive/1989_2004
ix	http://www.gci.org.uk/consolidation/Sasakawa.pdf
x	http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi	http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii	http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii	http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]









C&C

“Contraction and Convergence

http://www.gci.org.uk/translations/CandC_Statement(German).pdf **[GERMAN TEXT]**

1. „Verringerung und Konvergenz“ (Contraction and Convergence = C&C) ist der naturwissenschaftlich begründete globale Klimapolitikrahmen, der den Vereinten Nationen erstmals 1990 vom Global Commons Institute (GCI) vorgelegt wurde. i ii iii iv

2. Das Ziel unschädlicher und stabiler Treibhausgaskonzentrationen in der Atmosphäre und die Prinzipien der Vorsorge und Gerechtigkeit, wie bereits in der Klimarahmenkonvention der Vereinten Nationen (United Nations Framework Convention of Climate Change = UNFCCC) vereinbart, liefern die formelle Berechnungsgrundlage des C &C-Rahmens, der Folgendes vorsieht:

   * Ein Gesamtbudget für die Verringerung globaler Emissionen, die nach dem IPCC WG1 Karbonzyklusmodells der Stabilisierung atmosphärischer Konzentrationen von Treibhausgasen auf zuvor als unschädlich vereinbarten Maximalkonzentrationen entspricht. [GCI erachtet ein CO_2-Äquivalent von mehr als 450 ppm als ‚schädlich’].
   * Die internationale Aufteilung dieses Budgets in ‚Anrechte’ (Entitlements) beruht auf einer auszuhandelnden Rate linearer Konvergenz zu gleichen Pro-Kopf-Anteilen in aller Welt bis zu einem abgesprochenen Datum innerhalb des Zeitrahmens der gesamten Verringerungs-/ Konzentrations-Vereinbarung. [GCI schlägt vor, [1] dass die Konvergenz bis zum Jahr 2030 oder 2040 oder beispielsweise nach einem Drittel der Zeit eines 100-Jahres-Budgets abgeschlossen [siehe Punkt 5 und Abbildungen 1 & 2 unten] und [2] im C&C-Plan ein Bevölkerungs-Basisjahr festgelegt werden sollte.]
   * Die Verhandlungen hierzu im Rahmen der UNFCCC sollten hauptsächlich zwischen den Regionen der Welt stattfinden, während Verhandlungen zwischen einzelnen Ländern vorwiegend den jeweiligen Regionen (z.B. EU, Afrikanische Union, USA usw.) zu überlassen sind.
   * Der inter-regionale, inter-nationale und intra-nationale Handel dieser Ansprüche in einer geeigneten Währung wie beispielsweise der International Energy Backed Currency Units [EBCUs] v sollte gefördert werden.
   * Die wissenschaftlichen Kenntnisse über die Beziehung zwischen einer emissionsfreien Wirtschaft und Konzentrationen entwickelt sich ständig weiter, die C&C-Raten können also periodisch revidiert und fortentwickelt werden.

3. Die globale Bevölkerung löst derzeit schneller gefährliche Klimaveränderungen aus als sie deren Vermeidung organisiert. Die Herausforderung für die internationale Diplomatie besteht darin, diesen Prozess umzukehren. C&C verfolgt den Zweck, dies möglich zu machen. So können Szenarien für unschädliche Klimabedingungen errechnet und ausgehandelt und Strategien und Maßnahmen zu Raten, die gefährliche globale Klimaveränderungen vermeiden, organisiert werden.

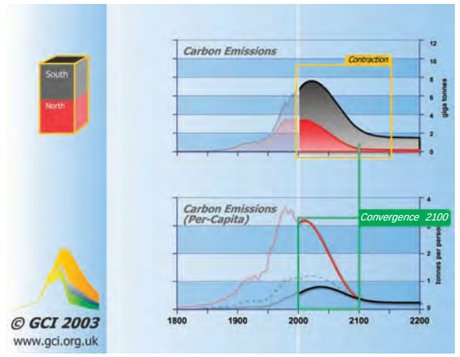
4. Die Treibhausgas-Emissionen, GHG-Emissionen (G[reen]H[ouse]G[as]) genannt, stehen bisher in enger Korrelation zur Wirtschaftsleistung. Bis heute hat dieses Wachstum der Volkswirtschaften vorwiegend in den industrialisierten Ländern stattgefunden, wodurch sich in letzter Zeit ein globales Muster von immer unökonomischer Expansion und Divergenz (E&D], von mangelndem Umweltgleichgewicht und von internationaler Unsicherheit herausgebildet hat.

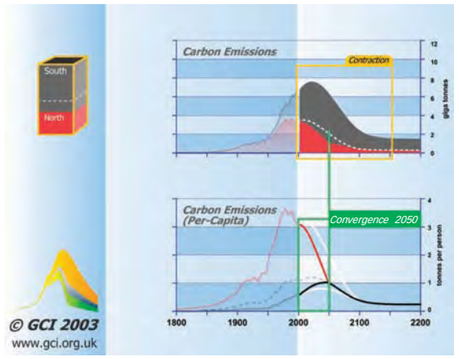
5. Die C&C-Antwort hierauf ist nicht kurzfristig und stochastisch sondern langfristig und konstitutionell. Sie nimmt sich dem inertialen Argument der „historischen Verantwortung“ für steigende Konzentrationen an und sieht dies als Entwicklungs-Opportunitätskosten für sich neu industrialisierende Staaten. C&C ermöglicht eine internationale Vorverteilung dieser handelbaren und daher wertvollen künftigen Anrechte auf Emission von GHGs auf Grundlage einer im Verhältnis zur vereinbarten globalen Verringerungsrate absichtlich beschleunigten Konvergenzrate [siehe Abbildung 2].

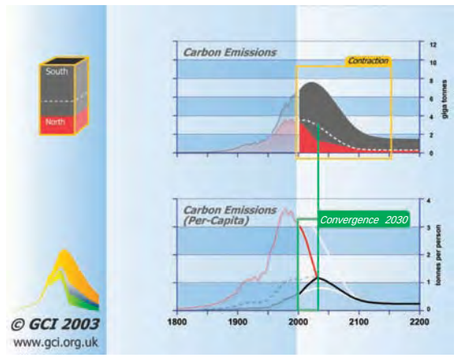
6. Die britische Royal Commission on Environmental Pollution vi und der deutsche Wissenschaftliche Beirat der Bundesregierung Globale Umweltveränderungen (WBGU) vii haben beide ihre Klimaveränderungsempfehlung en an ihre Regierungen als formelle C&C zum Ausdruck gebracht. Zahlreiche C&C-unterstützende Erklärungen von Individuen und Institutionen sind vermerkt worden. viii ix Die Gruppe Afrikanischer Staaten hat der UNFCCC 1997 formell C&C vorgeschlagen. x C&C wurde 1997 auf der dritten Vertragsstaatenkonferenz (COP-3) in Kyoto im Prinzip angenommen. xi C&C entspricht den Anforderungen der Byrd Hagel Resolution des US-Senates desselben Jahres xii, und das Europäische Parlament sprach sich 1998 in einer Resolution für C&C aus. xiii

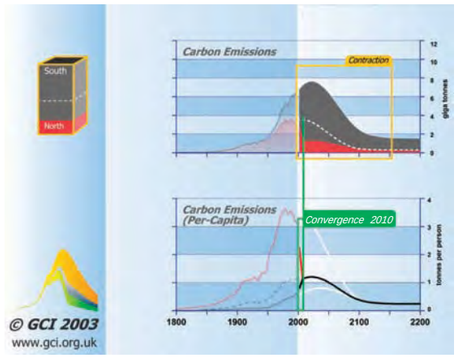
7. Diese Synthese von C&C kann den zunehmend gefährlichen Gleichgewichtsstörungen der globalen Klimaveränderung entgegenwirken. Ein auf globalen Rechten, Ressourcenkonservierung und nachhaltigen Systemen fußendes, stabiles C&C-System wird jetzt benötigt, um die Wirtschaft einer unbedenklichen und gerechten Zukunft für alle entgegenzuführen. Es baut auf den Besserungen und Versprechen der UNO-Konvention auf und begründet einen Ansatz, der bezwingend genug ist, um Auftrieb für dringend geforderte internationale Unterstützung und Aktionen zu geben – ungeachtet der Tatsache, ob das Kyoto-Protokoll in Kraft tritt oder nicht.

i	http://www.gci.org.uk
ii	http://www.gci.org.uk/model/dl.html
iii	http://www.gci.org.uk/images/CC_Demo(pc).exe
iv	http://www.gci.org.uk/images/C&C_Bubbles.pdf
v	http://www.feasta.org
vi	http://www.rcep.org.uk/pdf/chp4.pdf
vii	http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii	http://www.gci.org.uk/Archive/1989_2004
ix	http://www.gci.org.uk/consolidation/Sasakawa.pdf
x	http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi	http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii	http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii	http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]









C&C
"Contraction and Convergence"

http://www.gci.org.uk/translations/CandC_Statement(Spanish).pdf **[SPANISH TEXT]**

1. "Contracción y Convergencia" (C&C) es el marco con base científica para la política global sobre el clima propuesto en 1990 a las Naciones Unidas por el Global Commons Institute (GCI).i ii iii iv

2. El objetivo de conseguir unas concentraciones seguras y estables de gases de efecto invernadero en la atmósfera y los principios de precaución y equidad, tal como ya se ha acordado en la "Convención marco de las Naciones Unidas sobre el cambio climático" (cuyas siglas en inglés son UNFCCC), ofrece las bases para el cálculo formal del marco de la C&C que propone: -

   * Un presupuesto de contracción a término para las emisiones globales coherente con la estabilización de las concentraciones atmosféricas de gases de efecto invernadero (GHGs) a una concentración máxima acordada previamente que se estime segura según el siguiente modelo de ciclo del carbono IPCC WG1. [GCI considera como "no-seguras" las concentraciones de CO_2 superiores a 450 ppmv].
   * La distribución internacional de este presupuesto como "autorizaciones" resulta de una proporción negociable de convergencia lineal hacia cuotas iguales por persona globalmente alrededor de una fecha convenida dentro del plazo de tiempo del acuerdo de contracción/ concentración a término. [GCI sugiere [1] el año 2030 o 2040, o alrededor de un tercio de una estimación a 100 años, por ejemplo, para completar la convergencia [véanse más adelante el punto 5 y las imágenes 1 y 2] y [2] que se acuerde un año base para la población en el programa de C&C].
   * Las negociaciones al respecto en el marco de la UNFCCC deberían llevarse a cabo principalmente entre regiones del mundo, dejando las negociaciones entre países fundamentalmente dentro de sus respectivas regiones, como la Unión Europea, la Unión Africana, Estados Unidos, etc.
   * Debe impulsarse el canje de esas autorizaciones entre las regiones, entre los países y dentro de un mismo país en una divisa adecuada, como por ejemplo las unidades de divisas internacionales respaldadas por la energía [Energy Backed Currency Units - EBCUs] v .
   * El conocimiento científico de la relación entre una economía sin emisiones y las concentraciones evoluciona y por consiguiente también pueden evolucionar, de acuerdo con revisiones periódicas, las proporciones de la C&C.

3. En la actualidad la comunidad mundial continúa generando un peligroso cambio climático más rápidamente de lo que se organiza para evitarlo. El desafío de la diplomacia internacional es invertir esa situación. El objetivo de la C&C es lograr que esto sea posible. Facilita argumentos para que la seguridad climática sea calculada y distribuida a través de la negociación a fin de que sea posible organizar internacionalmente las políticas y las medidas en proporciones que eviten el peligroso cambio climático global.

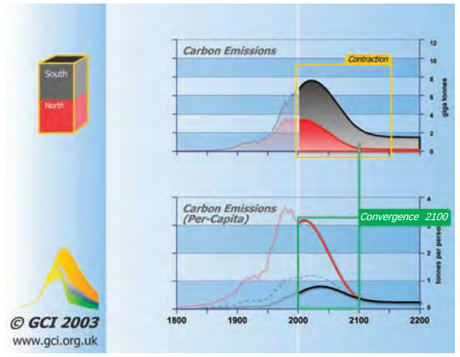
4. Hasta el día de hoy, las emisiones GHG han estado estrechamente vinculadas al rendimiento económico. Hasta la fecha, este crecimiento de las economías y de las emisiones se ha producido sobre todo en los países industrializados, creando recientemente una pauta global de expansión y divergencia [E&D] cada vez menos rentable, desequilibrio medioambiental e inseguridad internacional.

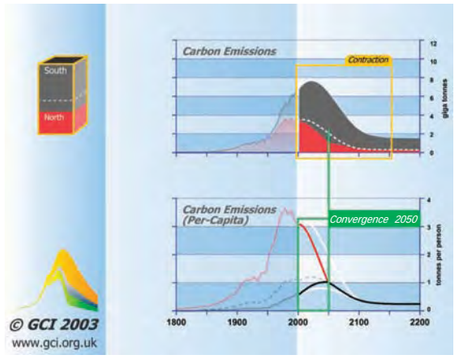
5. La respuesta de la C&C a esta situación es a término y constitucional, y no a corto plazo e hipotética. Aborda la polémica inercial sobre las "responsabilidades históricas" al plantear el tema de las concentraciones, reconociéndolo como un costo de oportunidad del desarrollo para los países de reciente industrialización. La C&C permite una predistribución internacional de esas futuras autorizaciones, canjeables y por lo tanto valiosas, para emitir GHGs que resulten de una proporción de convergencia que es deliberadamente acelerada en relación con la proporción global de contracción acordada [véase imagen 2].

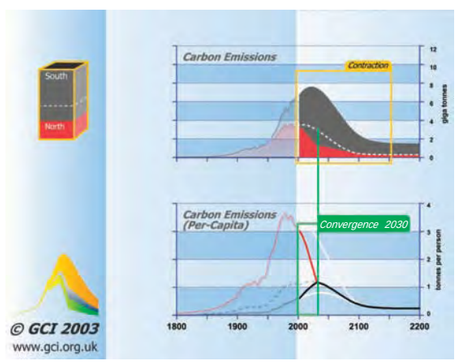
6. La Comisión Real de Contaminación Medioambiental del Reino Unidovi y el Consejo Asesor Alemán sobre Cambio Globalvii han hecho sus recomendaciones a los gobiernos sobre el cambio climático en términos de C&C. Numerosas declaraciones individuales e institucionales sustentan lo señalado por la C&C.viii ix El Grupo de Naciones de África la propuso formalmente a la UNFCCC en 1997.x En principio, fue acordada en Kyoto (COP-3) en 1997.xi La C&C cumple con los requisitos de la Resolución Byrd-Hagel del Senado de Estados Unidos de ese año xii y en 1998 el Parlamento Europeo aprobó una resolución en favor de la C&C.xiii

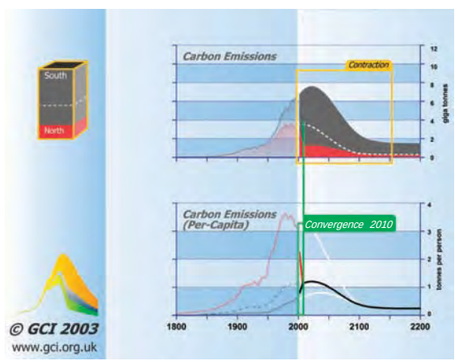
7. Esta síntesis de la C&C puede compensar la tendencia cada vez más peligrosa a los desequilibrios provocados por el cambio climático global. En estos momentos resulta necesario un método estable de C&C, desarrollado sobre el respeto a los derechos globales, la conservación de los recursos y sistemas sostenibles, para guiar a la economía hacia un futuro seguro y equitativo para todos. Se basa en las ventajas y promesas de la Convención de las Naciones Unidas y establece un enfoque que es lo suficientemente apremiante como para conseguir el apoyo y la acción urgentes de la comunidad internacional, con independencia de que el Protocolo de Kyoto sea o no de cumplimiento obligatorio.

i	http://www.gci.org.uk
ii	http://www.gci.org.uk/model/dl.html
iii	http://www.gci.org.uk/images/CC_Demo(pc).exe
iv	http://www.gci.org.uk/images/C&C_Bubbles.pdf
v	http://www.feasta.org
vi	http://www.rcep.org.uk/pdf/chp4.pdf
vii	http://www.wbgu.de/wbgu_sn2003_engl.pdf
viii	http://www.gci.org.uk/Archive/1989_2004
ix	http://www.gci.org.uk/consolidation/Sasakawa.pdf
x	http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
xi	http://www.gci.org.uk/temp/COP3_Transcript.pdf
xii	http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
xiii	http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]









Martin Wright talks to the composer turned climate campaigner **Aubrey Meyer**, the man behind Contraction and Convergence.

Diminuendo

Most mavericks who plan global salvation from the upstairs room of a small terraced house in Walthamstow can reliably be written off as two bricks short of a load.

Not so Aubrey Meyer. A classical musician with a head for maths, he might easily be dismissed as the last of the gentleman amateurs, if he hadn't gradually built up a vast swell of support for his disarmingly simple plan to tackle climate change. Its converts include such unlikely bedfellows as Jacques Chirac, the archbishop of Canterbury and the government of China, and it's increasingly being seen as the much-needed 'Plan B' to succeed (or even rescue) the struggling Kyoto protocol.

All this, despite just about the ugliest name in the environmental lexicon. In a field rich in silky smooth soundbites – think Climate Care, Future Forests, Clear Skies – Aubrey has come up with… Contraction and Convergence. Not so much a clarion call to save the planet, as a rather technical description of giving birth to twins….

"Yes, and immediately I suggested it, everyone I knew said: '*Don't* call it that, for god's sake! It'll just kill it stone dead!' But the great advantage is that it does *exactly* what it says on the tin…." Which is the singular virtue of 'C&C', as it's known to its burgeoning array of fans. What it lacks as a soundbite, it more than makes up in beguiling simplicity. Like any great idea, it's tailor-made for an elevator pitch: you really can explain its essence in seconds.

So here goes: we need to cut carbon emissions to a level consistent with a liveable climate. That's the contraction bit. The fairest way to do this, and the one most likely to win the necessary support worldwide, is gradually to converge the amounts which people are allowed to emit, until every citizen of the world has an equal share.

In practice, that means we need to agree on a sustainable level of carbon in the atmosphere (around 450 parts per million by volume is the ceiling most commonly quoted), and a date by which we need to reach and hold that total (2050, maybe). Then we set national emissions ceilings according to population, so as to meet that goal on the basis of 'equal shares for all'.

It's as simple, and as challenging, as that. There are some devils in the detail (what do you do about Trinidad – tiny population, but thanks to its oil industry, absurdly huge per capita emissions?), but nothing which can't be satisfactorily fudged. (You allocate by region, not state – so Trinidad's discrepancy could, for example, be swallowed up by an Africa-Caribbean group.)

The subtle beauty of C&C is the way it neatly addresses some of the squelchiest sticking points in the whole Kyoto process. For starters, it actually sets a specific, global goal on the basis of climate science – rather than relying on national carbon reduction targets which owe as much to diplomatic expediency as hard logic.

By bringing all countries into the equation, it deals with America's concerns that booming developing nations such as India and China have no incentive under Kyoto to curb their own carbon. By supporting full international emissions trading, it allows countries to reach their goals flexibly and at least cost. It encourages them to keep making cuts way beyond any agreed targets, since that will give them more carbon permits to sell – or fewer to buy. Finally, by insisting on equity, it addresses the third world's objection to paying for the sins of the rich.

It's this one-plan-fits-all approach which has won C&C such eclectic support. The European Parliament has voiced its approval, so has the Red Cross, the Lib Dems, and the Royal Commission on Environmental Pollution. Some in business, too, are friendly: Adair Turner, ex-head of the CBI, now with Merrill Lynch, is a fan. The insurance industry is interested, and even some of the oil companies, claims Meyer, have made privately appreciative noises.

> *"The discipline of C&C is right on the surface – the beauty, the ingenuity, is all hidden."*

The government remains wary, although Tony Blair has cautiously praised its "intuitive appeal". Michael Meacher, by contrast, when still environment minister, was unequivocal: "If ever there was an initiative that deserved support… it is this brilliant and relentless campaign waged by this fiercely independent, creative and apparently quite tireless individual."

After over three hours in Aubrey's front room, I can vouch for the 'tireless'. The man's just back from the States, but any traces of jet lag are swept away in a rolling wave of loquacious, almost intimidatingly erudite passion. C&C might be a tightly focused scheme, but its author's conversation ranges wide and wild across philosophy, maths, politics, music…. A typical stream-of-consciousness might kick off with the nuances of climate politics, only to meander enthusiastically, if a little bafflingly, through yoga, Bach, Cantorian brackets and the musical stones of ancient China. He's not averse to picking up his viola, which looks suddenly tiny and fragile in his hefty paw, and plucking out fragments of a scale to illustrate a point.

In public, he's the director of the Global Commons Institute. But don't let that fool you into thinking he's serviced by an office full of support staff – or constrained by the spin-sensitive caution of most NGOs. Aubrey is a soloist, and that 'fierce independence' so admired by Meacher is borne out by some unlikely sympathy for Washington's stance on Kyoto. "The deepest irony in the whole debate is that the US said from the word *go* that this *had* to be a worldwide agreement [and hence involve commitments from India and China]. But they were trashed by the NGOs just for saying that a global problem needs a global solution; that if we act unilaterally it won't solve the problem. And we said: 'You're absolutely right! Those are rhetorical, posturing protest arguments by people who want to be green, but don't think through the structural consequences of what they're saying.'"

This is not a man desperate to ingratiate himself with what might be thought of as his natural allies. But Meyer is blessed with an outsider's take on it all. Born in Bradford in 1947, he was brought up in South Africa, remaining more or less untroubled by the injustices of apartheid until he went to study music at the University of Cape Town. "I might have been ignorant of the situation before," he explains, in a soft, precise South African lilt

network photographers

mellowed by 20 years in London. “But you couldn’t exactly avoid it when the police turned up on campus with their truncheons and their guns, and started baton charging you. I wasn’t deeply involved, but I had friends who were, and just by associating with them, I too became a threatened species.”

Increasingly uneasy at the situation, he used music as a means of escaping military service, playing viola in orchestras in Europe, before returning to Cape Town in the mid-70s. There he shaped a living out of composing, playing and conducting, before apartheid’s realities came too close to home to ignore. Having befriended the (black) caretaker of his block of flats, he was horrified when the man was arrested on trumped-up charges of child abuse. He managed to have him freed, but “I realised then I had to either become really committed in the struggle, or get out. I got out.”

So it was back to Europe, to a life of conducting, composing, “to being paid for doing something I completely loved!” – and suddenly his face lights up, animation courses through him, more than at any other time in the interview… “I was writing ballets, I had royalty cheques landing on the doormat – it was like money for jam!” And then, one day in the late 80s, he was casting around for a subject for another ballet. He thought about Mandela, but by chance hit on Chico Mendes, the Brazilian rubber-tapper-turned-activist, murdered by ranchers intent on converting his rainforest home into pasture. Intrigued, Meyer started reading around issues that had scarcely touched him before – “and within three to four weeks, I was completely overwhelmed.”

The era’s wider surge of environmental concern trickled down to his four-year old daughter too. “I was putting her to bed one night, and out of the blue she asked: ‘Daddy, is the planet really dying?’ So I said: ‘I don’t think so, darling, but Daddy’ll find out, and if it is, I’ll put it right.’ And I thought, never in my youth, never in anybody’s youth, has a kid ever had to ask a question like that.”

It was epiphany. “The penny went through the slot very hard in one go. I thought: ‘You ran way from it last time – where do you run to now?” And suddenly music seemed completely pointless. I sold my viola, I sold my scores; for a while I just stopped playing completely.” He threw himself into the Green Party and Greenpeace, devoured The Ecologist and books like Jonathon Porritt’s Seeing Green, and started work on a scheme called ‘Equity and Survival’ – the precursor of C&C. It’s tempting to cast this as a mid-life crisis: a comfortable man in his early 40s seeking to recapture the energy and edge of youth. Not a bit of it, says Meyer. “I really wanted to write music; I got a real thrill from that. In one sense, I loathe doing this work….”

Since that burst of self-denial, he has taken up the viola again. Now, you can imagine a musician passionate about the environment using his art to touch people’s hearts – yet Aubrey spends most of his waking hours wrestling with the complexities of carbon diplomacy and the intricate maths of C&C. Don’t the constraints, the discipline of all that, chafe against his creativity? “Well music may be all beauty on the surface, but it’s all about discipline underneath.” He picks up the viola, plucks two notes, an octave apart. “Music is very mathematical. An octave is a precise doubling – if it wasn’t, you’d hear it as out of tune…. The discipline of C&C is right on the surface – the beauty, the ingenuity is all hidden. But it’s there.”

Meyer’s not without his critics. Some warn that C&C could turn people off by equating strategies to tackle climate change with sacrifice and denial. Others are sceptical of the insistence on equal carbon quotas, arguing that this obsession with equity could in practice do little to improve the lot of the poorest, and instead detract from more creative, dynamic efforts to shift to a low carbon economy.

Well, life is all about living within limits, responds Meyer – and so, come to that, is music. “There’s an almost childish fear of being constrained by supposed lost opportunities – that unless you allow unlimited growth, you’re som ehow missing out. It’s nonsense.”

He acknowledges that there’s an element of political persuasion for the South in the convergence element, but adds that this isn’t some kind of redistributive agenda: “It’s only entitlements; we’ll go on having emission rates that are different – that’s what the trading is for….” And convergence could win votes, too – especially if embodied in personal carbon budgets, as envisaged in the Domestic Tradeable Quotas bill.

“You’ll get paid for going by bike instead of by car. You’ll get paid for doing nothing, or doing less, or doing it differently.” Just as a small fraction of the populace owns most of the wealth, so the majority probably emit less than their ‘fair’ share of carbon. “So you won’t hit them with a carbon tax, you’ll be giving them a climate dividend! And that has to be an election winner!” But there’s still a strong moral argument for the equitable element of C&C – and as global inequalities grow, argues Meyer, it’s increasingly in our own interest to respond to it. “In economic terms, the last 50 years have actually been about ‘expansion and divergence’. Overall, we’re richer, but the majority have got poorer. We can’t keep doing that road. Even without climate change, that’s a social explosion waiting to happen – and one that will see a lot more mothers call their kids ‘Osama’….” “Angels are weeping; we’ve got to get in there, and do whatever it takes.”

LIVEABLE CITY AWARDS 2005 - 17th FEBRUARY 2005

On the day that the Kyoto Protocol came in effect, a Lifetime Achievement Award was made to Aubrey Meyer by the Corporation of London for his contributions to tackling climate change. The award was set up to honour the person from the world’s of academia, business, politics and lobbying who - in the judgement of the panel and the voters - had done more than any other individual to guide the climate change policy process at a strategic level. Aubrey, author of influential book “Contraction and Convergence - the Global Solution to Climate Change”, is widely recognised as providing a global framework within which to resolve policies and measures to avert climate change. The citation reads, *“in recognition of an oustanding personal contribution to combatting climate change at an international level through his efforts to enhance the understanding and adoption of the principle of Contraction and Convergence.”* Receiving his award Aubrey commented, *“I made the effort to establish Contraction and Convergence (C&C) because a fully international agreement to avert climate change is urgently needed. It is encouraging that C&C now gathers increasing international support. To discover there are people who also feel this effort deserves acknowledgement, is reward in itself. However, the Liveable City Award is a very welcome surprise as many eminent people were in this competition. I am grateful to them and the Corporation of London for all their efforts, and ask that we all advocate C&C together.”*

“Stabilization [of GHG concentrations] inevitably requires “contraction and convergence”.”
COP 9, Milan - 4th December 2003
Secretariat to UNITED NATIONS FRAMEWORK CLIMATE CHANGE CONVENTION

“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;
One of Australia’s leading economists

“. . . . to say - as a growing number of people now do - that the right to emit carbon dioxide should be considered a human right and that emissions permits should therefore be issued to all humankind on an equal basis. “Contraction and Convergence”, a surprisingly flexible plan is based on this idea.”
Richard Douthwaite;
One of Ireland’s leading economists

“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 government should press for a future global climate agreement based on the “Contraction and Convergence’. approach, coombined with international trading in emission permits. These offer the best long-term prospect of securing equity, economy and international consensus.”
Sir Tom Blundell; Chairman, RCEP
Royal Commission On Environmental Pollution

“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

“. . . WGBGU recommends emission rights be allocated according to the ‘Contraction and Convergence’ approach.“
Dr. John Schelnhuber;
Chairman, German Advisory Council on Global Change

“. . . a set of common principles will have to be based on agreement to have a worldwide binding limit on global emissions consistent with a maximum atmospheric concentration 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

"If we agree to equal per capita emissions allowances for all countries by 2030 in such a way that global emissions allow us to stay below the 2 degrees global temperature increase (equivalent to about 450 ppmv CO2), then the assigned amounts for Annex B 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, industrialized countries would have to do more, but it would be cheaper and easier."

Dutch Environment Minister, Jan Pronk, Chairman of COP-6, July 2000

"Equity should guide the route to global ecological recovery. Policy Instruments such as 'Tradable Emissions Quotas', 'Carbon Taxes' and 'Joint Implementation' may well serve to make matters worse unless they are properly referenced to targets and time-tables for equitable emissions reductions overall. This means devising and implementing a programme for convergence at equitable and sustainable par values for consumption on a per capita basis globally."

Indian Environment Minister, Kamal Nath, COP 1, April 1995

"First, our per capita Green House Gas emissions are only a fraction of the world average, and an order of magnitude below that of many developed countries. This situation will not change for several decades to come. We do not believe that the ethos of democracy can support any norm other than equal per capita rights to global environmental resources."

Indian Prime Minister, Shri Atal Bihari Vajpayee, October, COP-8, 2002

"When we ask the opinions of people from all circles, many people, in particular the scientists think that 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."

Chinese State Councillor Climate Change & Population, Dr Song Jian, Oct 1997

"Since 1992, we have fallen too far behind in the fight against global warming. We cannot afford any further delay. That is why, I can confirm to you here, Europe is resolved to act and has mobilized to fight the greenhouse effect.

Europe calls upon the other industrialized countries to join with it in this fight. And Europe proposes to the developing countries to join it in a partnership for sustainable development. Let us start thinking about the post-Kyoto period without further ado. Tomorrow, it will be up to us to set forth the rights and duties of each, and for a long time to come.

In order to move forward while respecting individual differences and special circumstances, France proposes that we set as our ultimate objective the convergence of per capita emissions. This principle would durably ensure the effectiveness, equity and solidarity of our efforts."

French President, Jaques Chirac, COP6, November 2000

"On the issue of equity, Sweden strives for a global convergence, meaning that the long term objective of the international community should be a per capita emissions target equal for all countries. The work towards sustainability embraces the right for the poorest countries to continue their development and requires that the developed world contribute to this. In other words the industrialised countries must reduce their emissions in order to enable the least developed countries to develop."

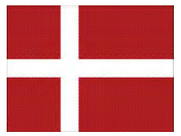
Swedish Minister of the Environment, Kjell Larsson, September 2000

"Emissions should converge towards a common international target, expressed as emissions per inhabitant."

Sweden's third national communication on Climate Change, 2001

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

Belgian Environment Minister, Olivier Delouze, COP6 November 2000



"The approach of "Contraction and Convergence" secures a regime that would allow all nations to join efforts to protect our global commons from being over-exploited, without the risk that any country would be deprived of its fair long-term share of the common environmental emission space.

It allows for consistent and efficient management of the global emissions that would enable us to strive for constraining global interference with the climate below fixed ceilings.

Danish Environment Minister, Svend Auken, April 1999

"It is now apparent that the world has to urgently agree to a more equitable method of reducing greenhouse gas emissions based on per capita emission rights allocations. This brings me to the concept of Contraction and Convergence. Ir embodies the principles of precaution (contraction of greenhouse emissions) and of equity (convergence at to equal share per head through a globally agreed date) in the reduction of greenhouse gas emissions between industrialized countries and developing countries.

The world must go an extra mile to avoid climate change, as it is cheaper than adapting to the damages. This in no way under-estimates what the Kyoto Protocol aims to achieve from the flexible mechanisms. Kyoto should continue but due to the increasing and unbearable negative impacts of climate change on developing country economies, in particular Africa, the world must begin to evaluate other globally equitable approaches.

The concept of Contraction and Convergence therefore needs to be assessed and evaluated by the United Nations Framework Convention on Climate Change particularly, its Subsidiary Body for Scientific and Technical Advise or the Intergovernmental Panel on Climate Change.

I am certain that our Ministers for Environment here present will see the need to bring this agenda very urgently to the attention of the Climate Change Secretariat."

Kenyan Planning & Development Minister, Anyang Nyongo, April 2004

"Avoiding dangerous rates of climate-change from fossil fuel dependency must be strategically guaranteed with appropriate structural adjustment of the international system.

The Contraction and Convergence" (C&C) scheme presented by the Africa Group at COP-3 in Kyoto, is the basis of this. Combined with international currency arrangements, C&C determined carbon shares create an inclusive global standard for sustainable resource use.

The full rent for the use of the environmental and atmospheric space of Developing Countries, can be paid by the Developed Countries, helping the world move from uneconomic growth to sustainable development for all."

Kenya, Director General of the ruling NARC, Alex K Muriithi, April 2004

The UK Government should commit itself to Contraction and Convergence as the framework within which future international agreements to tackle climate change are negotiated; and it should actively seek to engage support for this position during 2005 in advance of the next Conference of the Parties.

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.

UK House of Commons Environmental Audit Committee, April 2005

While technology will be an important part of the solution, we do not believe that recent attempts to focus exclusively on this area (for example, the Asia-Pacific Partnership on Clean Development and Climate) stand any major chance of success. A framework involving technology together with social, political and economic change – importantly with quantifiable targets – is in our opinion the only way forward.

This is why we support the well-known concept of "Contraction and Convergence" (C&C) as proposed by the Global Commons Institute as the basis for an agreement which is both effective and fair. It would satisfy both 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 Responsisbility, October 2005

"Contraction and Convergence - and its mechanism for financing sustainable development is the only proposal so far which is global, equitable and growth-oriented."
Congressman John Porter
Chair, GLOBE USA

"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
Programme Director, Forum for the Future

"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 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

"Further and more ambitious emissions reductions targets should be agreed for the second and subsequent commitment periods, based on the principle of 'contraction and convergence' with the long-term goal of equalising per capita emissions across the world."
UK Liberal Democrats
Proposals on Energy Policy

"I support the concept of 'Contraction and Convergence', as does the Environment Agency."
Sir John Harman; Chairman, UK EA

"Contraction and Convergence appears Utopian only if we refuse to contemplate the alternatives honestly."
Dr. Rowan Williams; The Archbishop of Canterbury

"The Green party of England and Wales strongly endorses the GCI/GLOBE campaign for Contraction and Convergence as the key ingredient in a global political solution to the problem of Climate Change."
UK Green Party

"A formulation that carries the rights-based approach to its logical conclusion is that of contraction and convergence."
Intergovernmental Panel on Climate Change, TAR WG3

"A fair distribution, establishing the concept of per capita emission rights for all countries, as proposed in the 'Contraction and Convergence' scheme."
David Hallman, World Council of Churches

"For the long-term, policy makers should reach consensus on a global framework for climate stability based on the principles of precaution and equity such as Contraction and Convergence which would aim to achieve equal per capita emissions for all nations by an agreed date."
UNEP Finance Initiatives

"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

"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 Rich; 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

"We regard Contraction and Convergence as no less than the logical starting point for any sustainable future."
Ed Mayo, New Economics Foundation

The solution to climate change is not to restrict the growth of newly industrialising nations so that we can carry on polluting. A globally equitable model of emissions reductions is required. The contraction and convergence model calls for already large polluting countries to cut their missions, 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

". . . 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 on C&C

world council of churches

"In the light of the long-term perspective two basic requirements must be met:

1. *Stabilisation of greenhouse gases in the atmosphere at a level in accordance with the overall objective of the Climate Change Convention.*
2. *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 WCC on C&C

defra
Department for Environment Food and Rural Affairs

"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

WORLD ECONOMIC FORUM

CEOs of the 23 largest corporations in the Davos World Economic Forum made a joint statement to the G8 leaders - governments must define an atmospheric greenhouse gas concentration that is stable and safe, and create a common global framework to enable investment in markets that operate effectively to this purpose from now on.

WEF CEOs on need for Common Climate Framework

CIBSE ice Institution of Civil Engineers

UK building industry leaders wrote to Mr Blair saying this framework-based 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
Christian action with the world's poor

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.

GFN - WWF on C&C

WWF

Global Footprint Network
Advancing the Science of Sustainability

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.

Byers Report on Global Framework

*"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

GREENPEACE

"A recommendation in the Byers report is to build on the global climate change framework of both the United Nations 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

"If the world is to stabilise concentrations of greenhouse gases at a safe level, a 'global emissions budget' consistent with the target concentration will need to be implemented. This raises questions about how to allocate this global emissions budget in a manner that is fair and reflects developing country concerns that they have adequate room for their economies to grow. Agreeing emission limits on a 'per capita basis' would, as a guiding principle, ensure that every person is entitled to release into the atmosphere the same quantity of greenhouse gas emissions. Without a long term guarantee of equitable emission entitlements, developing countries are likely to continue to refuse to participate in international action on climate change thus providing an excuse for further procrastination by the US. An immediate per capita allocation of emissions would not stand much chance as it would mean that industrialised countries would have to cut their emissions by far more, while many developing countries could increase theirs. There will have to an adjustment period in which nations' quotas converge on the same per capita level. This transitional framework is known as 'Contraction and Convergence' and was first proposed by the London based Global Commons Institute."

Tony Juniper Director of Friends of the Earth on C&C

Friends of the Earth

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.

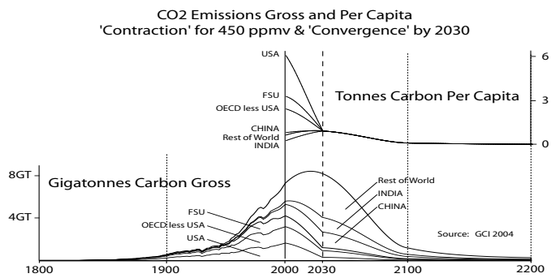
After "entitlements, the global ceiling date and time for Contraction and Convergence of global emissions because we do think that you cannot talk about trading if there are not entitlements, also there is a question of Contraction and Convergence of global emissions that comes into play when you talk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

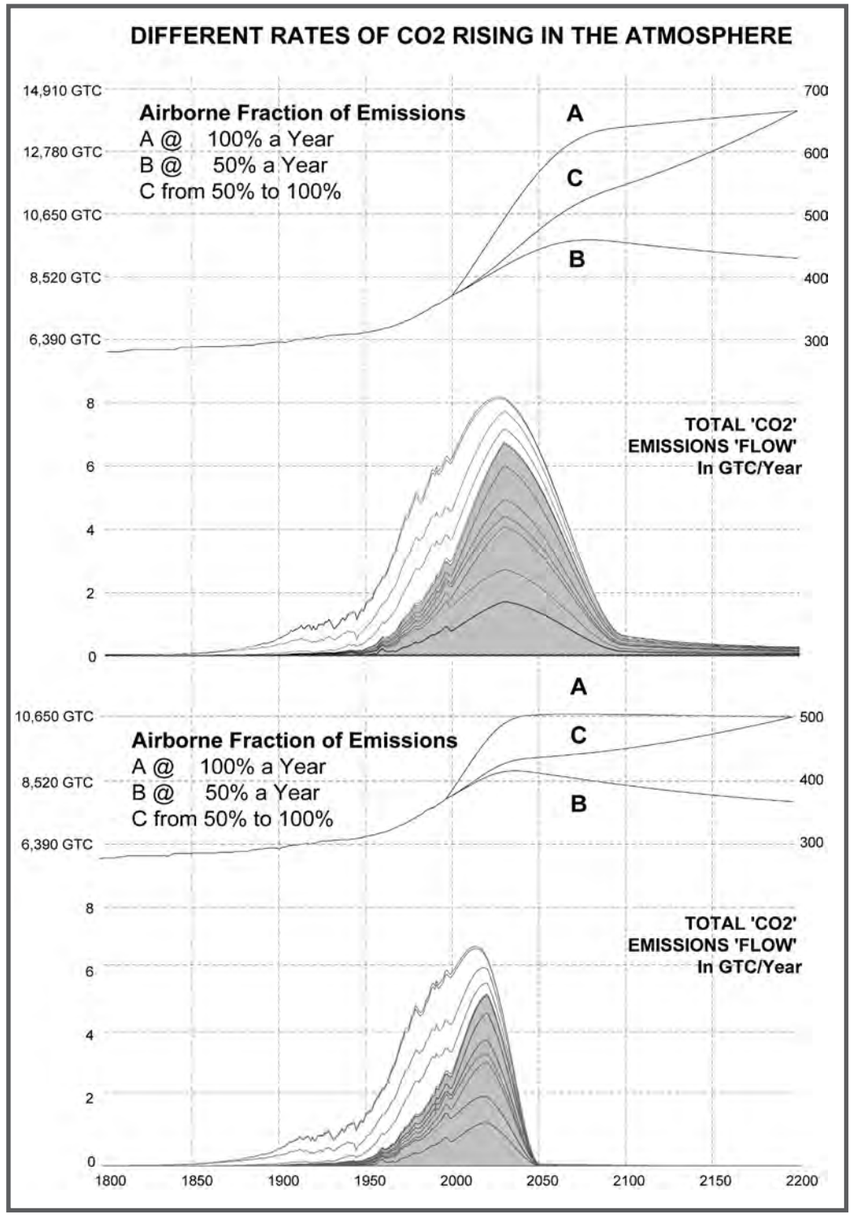
UNITED STATES OF AMERICA [Jonathon Pershing]:

" . . . . 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
http://www.gci.org.uk/Archive/Mega_Doc_1989_2004.pdf

Using 'C&C' and the Bill to Organise *"DOING ENOUGH, SOON ENOUGH"*, to AVOID Dangerous Climate Change



GCI 10th January 2006

This campaign for C&C has been conducted by GCI since 1990 with no structural support. It is a quite independent effort.

C&C reflects very closely the objective and principles of the UNFCCC.

From its tiny beginning, C&C has become the most widely quoted global framework for addressing global climate change as it is rational, transparent and constitutional.

Information about this history is on-line at: -
http://www.gci.org.uk/Archive/Mega_Doc_1989_2004.pdf

The campaign now seeks to bring the C&C Bill before the UK Parliament into law.

If you agree with the principles of C&C and would like to give logistical support to the parliamentary campaign, please contact: -

Colin Challen MP
Chair of the All-Party Group on Climate Change
House of Commons

by email: -
CHALLENC@parliament.uk

If you would like news about developments, please visit: -
http://lists.topica.com/lists/GCN@igc.topica.com/read

If you agree with the principles of C&C and would like to register support for the campaign, please contact: -

Aubrey Meyer
Director
GLOBAL COMMONS INSTITUTE

by email: -
aubrey.meyer@btinternet.com

If you agree with the principles of C&C and would like to give logistical support to this campaign, please contact: -

Lynda McDonald
Executive Secretary
GLOBAL COMMONS TRUST
Charity Number 1060056

by email: -
lynda.a.mcdonald@btinternet.com

Climate Change (Contraction and Convergence) Bill

A

B I L L

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.

Presented by Colin Challen.

Ordered, by The House of Commons,
to be printed, 23*rd November* 2005.

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CONTENTS

A

B I L L

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.

BE IT ENACTED by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1 Interpretation

In this Act—

"carbon emission rights" means rights to discharge greenhouse gases into the atmosphere;

"contraction and convergence" means —

(a) the stabilising of atmospheric concentrations of greenhouse gases at a safe and stable level, with planned progress towards that objective by an agreed date, and

(b) the equitable distribution of carbon emission rights among individual states or groups of states, in proportion to their population, with planned progress towards that objective by an agreed date,

as agreed in the United Nations Framework Convention on Climate Change, 1992 ("UNFCCC");

"full-term contraction budget for global greenhouse gas emissions" and "contraction budget" mean an arrangement for the progressive reduction of atmospheric concentrations of greenhouse gases to a safe and stable level over a defined period;

"greenhouse gases" means—

(a) carbon dioxide,

(b) methane,

(c) nitrous oxide,

(d) hydrofluorocarbons,

(e) perfluorocarbons,

(f) sulphur hexafluoride, and

2 Duty of Secretary of State

It shall be the duty of the Secretary of State to pursue a policy of combating global climate change in accordance with the principles of contraction and convergence.

3 Implementation of policy

In order to further the policy set out in section 2, the Secretary of State shall seek to secure international agreement on—

(a) a safe and stable level of concentrations of greenhouse gases in the atmosphere;

(b) a full-term contraction budget for global greenhouse gas emissions;

(c) the distribution of the contraction budget among individual states or groups of states in the form of carbon emission rights in such a way that distribution in proportion to population is achieved before the end of the period to which the contraction budget applies, whether or not a population base-year has been agreed;

(d) accelerating the rate of global convergence relative to the rate of global contraction in the contraction budget in its application to different regions of the world, whether developed or not;

(e) the sale and purchase of carbon emission rights, both between and within individual states, in order to promote the development of, and investment in, technology which reduces carbon emissions to a minimum; and

(f) the revision by the Conferences of Parties and Meetings of Parties to the UNFCCC of any agreed rates of contraction and convergence so as to take account of improvements in the scientific understanding of the dangers of climate change.

4 Report to Parliament

The Secretary of State shall in the course of each year lay before Parliament a report containing—

(a) an assessment commissioned by him of the current state of global emissions of greenhouse gases;

(b) a statement on the progress made in the previous year in negotiations towards implementing the provisions of sections 2 and 3 of this Act;

(c) his assessment of the efficacy of the instruments of domestic policy which are designed to give effect to the contraction budget; and

(d) a statement on the progress made in the previous year towards the implementation of the contraction budget.

5 Regulations

(1) Any power of the Secretary of State to make regulations under this Act is exercisable by statutory instrument.

(2) Any regulations under this Act shall be laid before Parliament after being made and shall be subject to annulment in pursuance of a resolution of either House of Parliament.

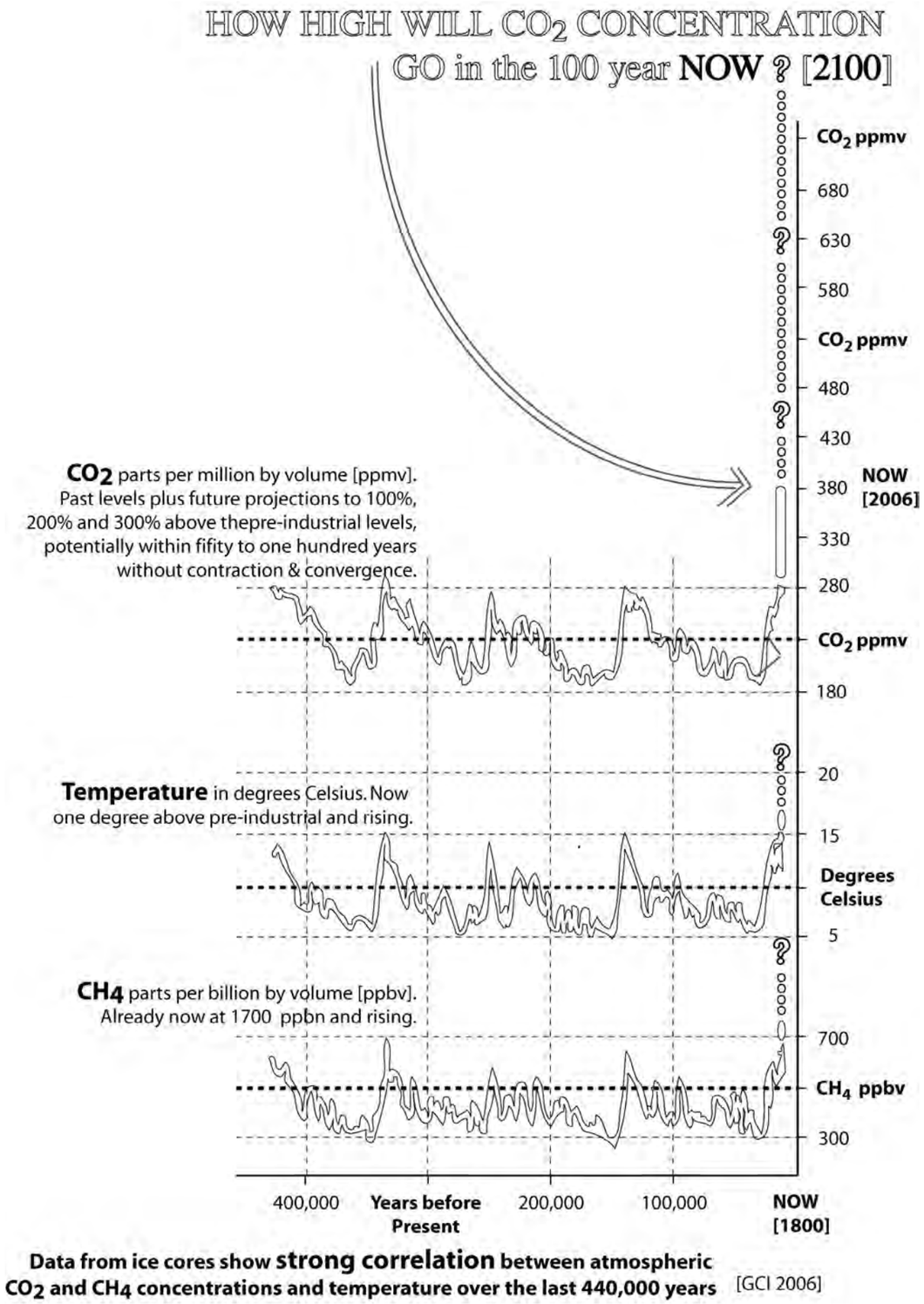
6 Expenses

There shall be paid out of money provided by Parliament any expenditure incurred by a Minister of the Crown by virtue of this Act.

7 Short title

This Act may be cited as the Climate Change (Contraction and Convergence) Act 2006.

Global Historical Context for CO2 CH4 and temperature on a Geological Timescale.

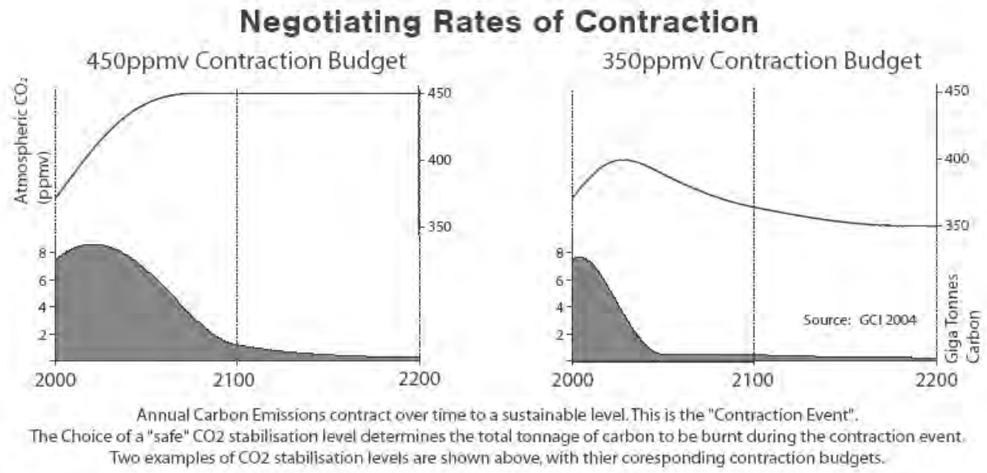


Data from ice cores show strong correlation between atmospheric CO_2 and CH_4 concentrations and temperature over the last 440,000 years [GCI 2006]

USING C&C TO ORGANISE *"DOING ENOUGH, SOON ENOUGH"*, TO AVOID DANGEROUS CLIMATE CHANGE

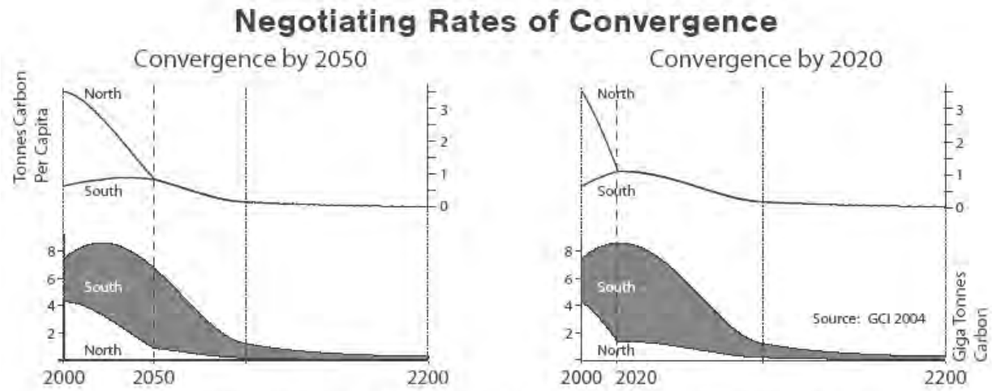
1. "Contraction and Convergence" (C&C) is the science-based, global climate-policy framework, proposed to the United Nations since 1990 by the Global Commons Institute. This definition below is the basis of a 'C&C Bill" now before the UK Parliament.

2. The objective of safe and stable greenhouse gas concentrations in the atmosphere and the principles of precaution and equity, as agreed in the "United Nations Framework Convention of Climate Change" (UNFCCC), provide the formal calculating basis of the C&C framework that proposes:



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.

- 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').



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.

- 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.
- The inter-regional, inter-national and intranational tradability of these entitlements in an appropriate currency such as International Energy Backed Currency Units [EBCUs - 5] should be encouraged.
- Scientific understanding of the relationship between an emissions-free economy and concentrations develops, so rates of C&C can evolve under periodic revision.

3. Presently, the global community continues to generate dangerous climate change faster than it organises to avoid it. The international diplomatic challenge is to reverse this. The purpose of C&C is to make this possible. It enables scenarios for safe climate to be calculated and shared by negotiation so that policies and measures can be internationally organised at rates that avoid dangerous global climate change.

4. GHG emissions have so far been closely correlated with economic performance (See Image 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 (See Image).

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 predistribution 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..

6. The UK's Royal Commission on Environmental Pollution [6] and the German Advisory Council on Global Change [7] both recommend C&C to governments. Many individual and institutional statements supporting C&C are now on record. [8, 9] The Africa Group of Nations formally proposed it to the UNFCCC in 1997. [10] It was agreed in principle at COP-3 Kyoto 1997. [11] C&C conforms to the requirements of the Byrd Hagel Resolution of the US Senate of that year [12] the European Parliament passed a resolution in favour of C&C in 1998 [13] and this definition statement is now the basis of a Bill [The "Contraction and Convergence" Act] before the UK Parliament.

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 is an approach compelling enough to galvanise urgent international support and action.

[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.rcep.org.uk/pdf/chp4.pdf
[7] http://www.wbgu.de/wbgu_sn2003_engl.pdf
[8] http://www.gci.org.uk/Archive/1989_2004
[9] http://www.gci.org.uk/consolidation/Sasakawa.pdf
[10] http://www.gci.org.uk/papers/zew.pdf [appendix C, page 16]
[11] http://www.gci.org.uk/temp/COP3_Transcript.pdf
[12] http://www.gci.org.uk/briefings/C&C&ByrdHagel.pdf
[13] http://www.gci.org.uk/consolidation/UNFCC&C_A_Brief_History_to1998.pdf

A global CO2 problem declared in 1990

The First Assessment Report (FAR) of the Intergovernmental Panel on Climate Change (IPCC) – Climate Change; the Scientific Assessment - was published in 1990. Even then its main findings were confident and stark. Climate Scientists agreed that: -

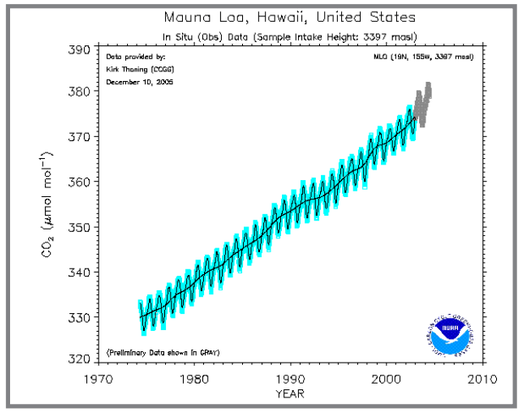
- greenhouse gas concentration in the atmosphere had risen 25% above the pre-industrial level;
- this was due to an accumulation of emissions from human activities such as fossil fuel burning and land-use change;
- global mean temperature had increased by more than one third of a degree over the previous 100 years;
- calling it "inadvertent", this combination of trends was potentially changing the global climate in a manner that was damaging and dangerous;
- to stabilise the rising concentration of carbon dioxide (CO2), the main greenhouse gas from human sources, in the atmosphere at the then current value of 353 parts per million by volume (ppmv), an immediate deep cut [between 60% and 80%] of the emissions of CO2 would be required;
- concentrations would continue rising if the cuts were not immediately implemented and if such cuts were delayed, a greater the extent of cuts would be required to achieve a given level of concentration in the atmosphere.

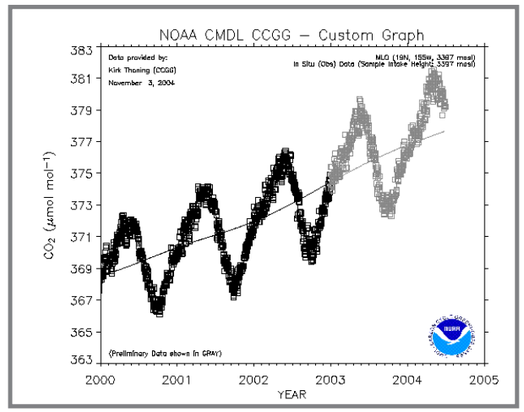
Inconstancy in the 'Constant Airborne Fraction' [CAF] of CO_2

Until recently, the ratio of rising emissions and concentrations [or sources minus sinks] has been assumed to be constant. The ratio of what has been accumulation in the atmosphere has remained constant at the net 50% of the flow of emissions for the last two hundred years. The CDIAC data record shows these things clearly;

1. Emissions of CO2 from fossil fuel burning rose from about ten million tonnes of carbon a year in 1800 to around six and a half billion tonnes at the present rising at an average rate of between 2 and 3% per annum, [See Chart on page 6],
2. Concentrations of CO2 in the global atmosphere rose during this period 100 parts per million by volume (ppmv) from 280 ppmv in 1800 to 380 ppmv at the present time, [See left hand side Charts overleaf - "Different Rates of CO2 Rising"].

So far on average, a constant half of each year's emissions has been retained in the atmosphere and half has been returned to the natural sinks. It is this so-called 'constant airborne fraction' [CAF] that now appears to be increasing. The biosphere 'sinks' appear no longer to be expanding in proportion to the growth rate of emissions. The fraction of each year's emissions retained in the atmosphere is increasing.





These two images are from Mauna Loa Observatory [MLO] in Hawaii [NOAA]. They show the rise in CO2 in the global atmosphere as an average of measurements taken from many points around the globe since the early 1970's. The one on the right enlarges the detail from 2000 until mid 2004. The significant feature is the accelerated rise recorded between 2002 and 2004. This recent average of increase is 1.5 parts per million by volume (ppmv) a year. The last two years appear to have doubled the rate to nearer 3 ppmv. Each atmospheric ppmv CO2 weighs 2.13 billion tonnes of carbon [GtC] so 1.5 ppm weighs 3.2 GtC. A rise per annum of 3 ppmv is aweight-gain of 6.4 GtC.

This is roughly equal to the entirety of human emissions from fossil fuel burning in that single year. Why? The global economy didn't grow 100% in that year. It grew at under 3%. So up to the net equivalent of 100% of emissions appears to have been retained in 2003/4.

This breaks sharply with the average pattern of the past. Ralph Keeling of MLO, said informally if one wanted to know what positive feedback would look like, it would look like this. This is not reassuring. Positive feedback within the system as a whole increases the potential for rates of global climate change to become 'runaway', rates over which we will lose any control we might have had through emission control. If this trend persists, the odds for achieving the objective of the UNFCCC worsen. It means that the contraction and convergence of emissions required for stable concentrations must be

CO2 Emissions and Concentrations A 'Bath-Tap' Analogy

The dominant greenhouse gas from human sources is carbon dioxide or CO2. The relationship between atmospheric CO2 concentrations and the emissions of CO2 from human sources is a 'stock-flow' relationship and can be thought of as a 'bath-tap' analogy. Just as the bath accumulates the flow of water to it from the tap, the atmosphere accumulates the flow of emissions to it from sources such as the burning of fossil fuels. Emissions are the short-term flow to the atmosphere which slowly accumulates a fraction of these as long-term stock.

On the flow side, the bath-tap analogy extends further introducing the 'plug-hole' through which water is drained away, where the tap represents the 'sources' of emissions, the plug-hole represents their natural 'sinks'. Sinks are for example oceans and forests and where some of the extra CO2 emissions are 're-absorbed'.

If the plug hole is open while the tap is on, the level of water in the bath [the stock] slowly rises. In other words that level of the bath is the net balance of the rates of flow in to it through the tap [the source] and out of it through the plug-hole [the sink]. If the tap runs in at twice the rate the plug-hole drains away, the net rate of water accumulating in the bath is 50%, or half the rate, of the flow from the tap into the bath.

If the bath approaches the point of over-flowing, the tap needs to be turned off completely to avoid over-flow. The bath level however, continues to rise even while the tap is being turned off and at least until it is turned off.

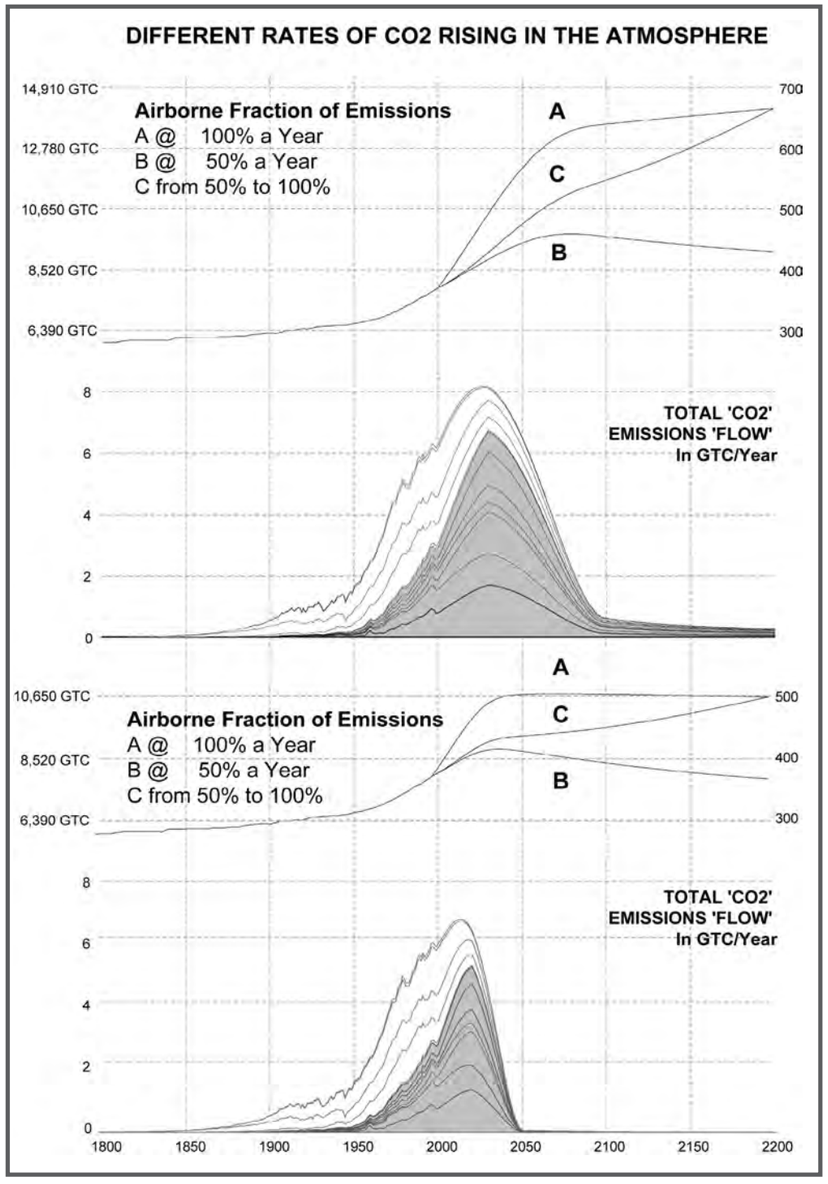
The danger of the over-flow is increasing not decreasing. Rates of the flow from the tap into the bath and from the bath out through the plug-hole - are accelerating – as is the rate of retention. In the real world this is manifest and there is real cause for concern. Emissions are increasing driven by efforts to correct 'Asymmetric global development' and sinks are failing due to increased forest combustion, warming and acidification of the oceans consequently the airborne fraction of emissions is increasing too.

In the analogy, the tap is opening wider, the pressure behind it is increasing, the plug-hole is blocking up, the rate at which the bath is filling is accelerating and there are more and more people in the bath wanting to fill it; - the likelihood of the bath overflowing is itself, rapidly growing.

The delaying consequences of vague and aspirational climate politics come at a price. Here is a graphic visualization of future CO2 emissions and their possible effects on future atmospheric concentrations. This is based on two 100 year totals [600 GtC Chart in A and 300 GtC in Chart B] of emissions from the IPCC. In both scenarios, atmospheric retention of CO2 is projected over 200 years at three rates:

C – Airborne Fraction Constant [CAF] at 50%, as per the original modelling;
A - Airborne Fraction Constant at 100%, constantly projecting the recent rate;
B – Airborne Fraction Constantly increasing from 50% to 100% as the mean case.

If CAF is no longer constant at 50%, even if it is increasing only gradually, this needs to be explained. The projections show clearly that the deep cuts in CO2 globally we are contemplating may prove ineffectual unless they are systematically structured and pursued as a top priority, immediately. The case for urgent contraction is clear. If the overall rate of rate of contraction is kept to not exceeding 400ppmv, the risk of accelerating atmospheric accumulation into the curvature of the C path is reduced.



As soon as we look at futures that were previously quantified in IPCC 2nd and 3rd Assessments as raising concentrations no higher than 450 ppmv, the accelerating increase in the airborne fraction means that even with the global contraction of emissions the concentrations can and probably will continue to rise; this means that temperature and damages will continue to accelerate as well.

With countries identified, these two scenarios are compared at the end of this paper with different rates of convergence to demonstrate the methodolgy of *'convergence-accelerated-relative-to-the-overall-rate-of-contraction'.* This

The Emerging Political Economy of Climate Change since 1990

John Knaess, the Head of the US Delegation to the Second World Climate Conference in November that year, was asked at a press conference whether the US accepted the report's findings on increased concentrations and the implied increase in global warming. His reply was memorable and blunt; *"this is simple sophomore physics; the only uncertainties now are to do with how much warming and how soon."* Heat-trapping or 'greenhouse' gases, by definition, trap heat. What John Knaess was affirming was fundamental and obvious; if greenhouse gas traps heat, more greenhouse gas traps more heat. In no sense was his response a US denial of the problem.

This was easy to understand but not easy to act on, and the policy difficulty was very easy to understand. CO2 emissions, especially those from fossil fuel burning, have been a close proxy for income or Gross Domestic Product since industrialisation at the beginning of the 19th Century. Deep cuts in these emissions to stabilise their atmospheric concentration implied curtailing economic growth. Indeed Economic Scientists working on emissions stabilisation scenarios in the 'Response Strategies Working Group' of the IPCC, stated that *"economic growth levels were assumed to decrease in the second half of the [21st] century."*

Real life intervened hard at that moment in the direction of damaging growth. In pursuit of more oil production, the Kuwaitis had been 'slant-drilling' under their North West border with Iraq. Seeing this as theft of Iraqi oil, Saddam Hussein objected and responded by invading Kuwait. Mrs Thatcher, then UK Prime Minister, used the 2nd World Climate Conference as a platform to denounce this and fearing this was the Iraqi preamble to seizing the nearby Saudi oil-fields, the then US President George Bush Senior formed and led a coalition of military forces to drive him out.

In retaliation, Hussein detonated the heads of the oil-wells and the emissions of CO2 from that two month conflagration resulted in pointless emissions of CO2 to the global atmosphere for some months while the fires were extinguished. With no economic benefit to anyone, the emissions impact of this on the global climate system was equal to the all emissions from the UK for one year [180 Megatonnes Caron]. During the rest of the year, soot particles were found in snows around the planet.

As that war began in January 1991 so did the negotiations to create what became the United Nations Framework Convention on Climate Change (UNFCCC). Formally agreed eighteen months later in June 1992 at the Earth Summit in Rio, the 'ultimate objective' of this treaty was to stabilise the rising concentrations of greenhouse gases in the atmosphere at a level that did not trigger dangerous rates of climate change. From that moment to this, the meaning of the word 'ultimate' has veered between 'eventual' and 'fundamental' and argument along this axis of interpretation remains contentious and confrontational. Some, who see evidence of global climate change as speculative, see the objective as an outcome to which end efforts are merely 'aspirational'. Others see evidence of global climate potentially changing so dangerously that species survival is called into question. Their thesis is "Equity and Survival" and to them being less than totally committed to the objective of the UNFCCC in a fundamental and organised way is foolishly playing the odds on an extinction event. Drawing the prickly inference that 'everything will come right in the end', fundamentalists see eventualists as mere evolutionists who recklessly seek refuge in the economics of Doctor Pangloss where mere aspiration secures the best of all possible worlds.

When really pressed on the reality of the problem, some eventualists switch to being fatalists saying there is no solution to the problem of climate change as it is too vast and humanity too disorganised to avert it.

United Nations Framework Convention on Climate Change

Agreed in June 1992 and ratified into force by March 1995

The Convention's Key Clauses

After two years of negotiation the UNFCCC draft text was tabled at the Earth Summit in 1992, signed and subsequently ratified. It defines the global problem and states that its global objective has to be guided by the principles of precaution and equity with a need for efficiency. Some of its key clauses are reprinted below:

The necessity for the Convention.

Parties to the UNFCCC, *'acknowledge that change in the Earth's climate and its adverse effects are a common concern of humankind.'* They are, *'concerned that human activities have been substantially increasing the atmospheric concentrations of greenhouse gases, that these increases enhance the natural greenhouse effect, and that this will result on average in an additional warming of the Earth's surface and atmosphere and may adversely affect natural ecosystems and humankind'* (Preamble).

The Convention's Objective

'The ultimate objective of this Convention is to achieve.. stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.' (Article 2) In other words, greenhouse emissions have to contract.

The Principle of Global Equity

The Parties *'should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity.' (Article 3.1).* They note that, *'the largest share of historical and current global emissions of greenhouse gases has originated in developed countries and that per capita emissions in developing countries are still relatively low' (Preamble).* They therefore conclude '*that in accordance with their common but differentiated responsibilities and respective capabilities the developed country Parties must take the lead in combating climate change and the adverse effects thereof' (Article 3.1),* while, *'the share of global emissions originating in developing countries will grow to meet their social and development needs,'* (Article 3.3).' In short, the Convention covers Convergence and a system of emissions allocation.

The Precautionary Principle

The Parties, *'should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures . . . (Article 3.3) . .*

Achieving global efficiency

' . . taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at lowest possible cost.' (Article 3.3). This clause points to the global trading of emissions rights. More generally, the point to note here is that the idea of a framework based on precaution and equity had been established, with efficiency introduced in a subsidiary role purely to assist it.

Equity and Survival

From the outset however the US government took the position that global warming was a global problem and required a global solution. Their recognition of the need for globality was not just reasonable, it was inevitable. It said that to be effective at avoiding dangerous rates of climate change, all countries had to be involved in controlling emissions now, as the atmosphere was fluid, global and with no vertical boundaries, a perfect mixer of greenhouse gases.

In other words - perhaps like the US Government itself - the atmosphere was indifferent to the history and geographical source of emissions. Emissions from anywhere and anytime and for whatever reason are retained in the atmosphere. Consequently the US Government was calling for politics based on the generally obvious point that emission control in only some countries with no control of emissions in others was partial and therefore ineffectual. Following scenarios from the 'science-policy' group in the first IPCC report, initial talk was of global emissions reductions pro rata at 2% annually, either immediately or from perhaps 2010 onwards.

But as the United Nations Framework Convention on Climate Change (UNFCCC) was negotiated two global principles emerged in support of attainment of the objective: - precaution and equity. Precaution meant that taking steps to avoid climate change was necessary, even if uncertainties remained as to measuring the extent of the dangers faced. And equity recognized differentials; that national responsibilities for the accumulation of greenhouse gases in the atmosphere thus far were actually very different when added up over time. In essence the industrial countries of the North with 20% of global population were responsible for 80% of the rise in concentrations, and the newly industrialising countries of the South with 80% of global population were responsible for the other 20% of the rise in concentrations. This asymmetry obviously could not be ignored.

Because of the link between emissions and income, another way of measuring this was the significant differences in per capita emissions [or impact] and purchasing power [or income] between the two groups: it was on average between ten and fifteen to one. These differences were generically recognized in the text of the UNFCCC. The North, while not necessarily saints, recognized they had had a prosperous past and the South, while not necessarily sinners, felt they still deserved a future no less prosperous. The difficulty for everyone was that for the developing countries this development issue was paramount, even if it meant burning fossil fuels and damaging the global environment to achieve it.

'Expansion and Divergence' Growth, Efficiency and No-Regrets

After 1992, the UNFCC underwent a three-year period of gathering the volume of signatures that eventually ratified it into force in 1995. At the same time the IPCC underwent a three-year period of preparing its "Second Assessment Report".

It was during this period that two strands of economic argument were woven onto the fundamental framework of the UNFCCC objective and principles and the US Government requirement for 'globality'.

The fundamental thesis of the UNFCCC was 'precaution, equity and stabilisation'. The evolutionist counter-thesis was 'no-regrets, efficiency-gains and aspiration' and well-resourced economists arrived in force to champion this antithesis from 1993 onwards. Preferring 'evolutionism' and 'eventualism' to fundamentals, the economist's arguments led to diplomatic confrontation, political dissipation and lost opportunity.

'No-regrets' was the school of economic reasoning which traded off both sides of the scientific uncertainty around global warming. For example it said that where a local policy measure adopted to lower energy consumption and fuel bills avoided

emissions as well, there should be no-regrets about the avoided environmental costs to the climate system. As it was an avoided production cost that enhanced net income, it therefore made sense anyway. This was sceptic reasoning and its effect was to entrench delay.

'Efficiency-gains' raised the local no-regrets argument to a standard for the global good. This economic reasoning traded growth off damage, or global income off global impact. As long as units of economic growth per unit of damage to the climate system - or the ratio of dollars global GDP to tonnes of global greenhouse gas emissions – increased in favour of income, this 'global-cost-benefit-comparison' claimed to show that the economy could 'safely' absorb damages from climate change while it continued to grow.

What this really said however, was that the aspiration towards growth out-ranked the aspiration towards the objective of the climate treaty, whatever the eventual oucome. It promoted evolutionist economics to out-rank the fundamentally goal-specific framework for globality required to achieve the objective of the UNFCCC. This raised delay to a whole new level and argument between evolutionism and intelligent design found a whole new arena.

Climate change was correctly seen by evolutionist economists as a threat to continued economic growth. So they asserted the conceptual framework of 'global cost-benefit-analysis' of climate change, claiming it would help determine the levels of carbon tax that should be introduced to discourage emissions. Distinct from stabilising their atmospheric concentrations, this 'social cost' of carbon, would be how much tax people were willing to pay to avoid a unit of emissions causing climate change and damages.

This approach was flawed and inadequate. It contained fundamental errors that led to diplomatic furore. Repudiating the scenarios in the IPCC First Assessment that anticipated decreasing economic growth, the economists restated that the incontestable purpose of the economy was to grow at three or more percent per annum ad infinitum.

The first error was their valuation of the planet's resources as a whole as threatened with increasing and potentially catastrophic damages. While insurance industry data showed these damages to have been growing steadily at twice the rate of economic growth for the previous 30 years, the economists ignored this and any projections of such trends, and spot priced their damage estimates – many external to the markets altogether - at the margins and persistently well below the value of the economy as a whole. It was only some years later some of them acknowledged the possibility of climate change delivering "nasty surprises".

The second error was their failure to recognise the enormity of global economic apartheid. For the Second Assessment Report, the IPCC asked GCI to undertake a trend study of the unequal use of the global commons. We did this and it was published by IPCC in 1995. It demonstrated that the economies of the world have been jointly and severally growing in a persistent pattern of 'expansion and divergence' since at least since the Second World War. By 1990 this pattern showed on average the persistent global distribution of US Dollar equivalent purchasing power and emissions between people as follows: -

[1] one third of population had consistently emitted more than 40% of the annual per capita average of fossil fuel emissions giving a total of 90% gross of annual emissions and 94% of annual global purchasing power, and the other . . .

[2] two thirds of population had consistently emitted less than 40% of the annual per capita average of fossil fuel emissions giving a total of 10% gross of annual emissions and 6% of annual global purchasing power.

Population, pollution and purchasing power had been increasing throughout the period. This asymmetric 'expansion and divergence' are trends of worsening global economic apartheid now also aggravated by the rising damages of climate change.

The economists ignored these in their 'global cost-benefit-analysis' and demonstrated that the loss of life was – all things considered – a benefit and not a cost. The effect of this was inflammatory. Considerable mortality due to climate change related events was already apparent at that stage and the economists forecast a considerable rise in this especially in the poorer countries. Mortality is inevitably part of the story, but it was the economist's monetarily abnormative valuation of this that proved to be one of the academic blunders of all time. The deaths were valued 'statistically' as functions of the disparate incomes of the people who were forecast to perish due to climate change. The crude global results were poor and rich valued at fifteen to one; in other words on average fifteen dead Indians had the same economic value as one dead European. So though most deaths were forecast to occur in the poorer countries, these had a smaller cash value than the relatively smaller number of deaths forecast to occur in the richer countries. The two thirds of the global population in our study were mostly people in the poor countries of the South who rightly said they had not triggered this global crisis. The whole things suggested the poor were "too poor to worry and too poor to worry about". Normal to the economists perhaps, this method caused outrage and several Governments from Developing Countries denounced this as the 'economics of genocide' and a policy promoting economic growth than preventing climate damages and deaths. It was formally repudiated in the 'policy-makers summaries' when the Second Assessment Report (SAR) of the IPCC was published in 1995 [as quoted below].

Anticipating this inflammatory outcome, GCI attempted to persuade the economists that at least equal life evaluation might be seen as a less contentious method. We were rebuked by Professor William Nordhaus of Yale University who took the view that we were merely "objecting to the US Dollar as the unit of measurement". He advised us to seek the dollar's replacement with "spotted-owl-equivalents if we preferred" and present our ideas "in the political and economic market place." We did this asking why, if a spotted owl equalled a spotted owl, a human didn't equal a human.

We never got an answer from him or his colleagues. However, when the negotiations resumed in 1996, the programme of "Contraction and Convergence" (C&C) we had begun devising in 1990 was worked out for negotiations about the full term. Based on the fundamentals of concentration limits, globality and equal emissions rights that are internationally tradable, C&C established a constitutional bench-mark in the political and economic market place that no economist has displaced to this day.

'Contraction & Convergence' - the whole truth and reconciliation

We returned to the UN climate negotiations in 1996 with the first two examples of fully worked "Contraction and Convergence" (C&C) scenarios and imagery. With data from the US Energy Department for past emissions, the images showed these for all countries in a pattern of 'Expansion and Divergence' and the "Contraction and Convergence" (C&C) of these in projections of the future where rising atmospheric CO2 concentrations were held to no more than 350 ppmv (parts per million per volume) in one, and 450 in the other. Total rates, weights and shapes of the contraction budgets were taken from the IPCC.

In 1994/5 the IPCC published for the first time emissions scenarios that directly juxtaposed runs from the so-called "Bern" Carbon-Cycle Model for stabilising CO2 concentrations with the six evolutionary emissions scenarios from the IPCC Response Strategies Working Group published in 1992 [IS92].

Taking the fundamental view that stabilising greenhouse gas concentrations in the atmosphere outranked the predictions of economists, which did anything but, we used the Bern carbon-cycle model runs to create the C&C calculus or 'planning model'. We regarded the economic models as dangerous.

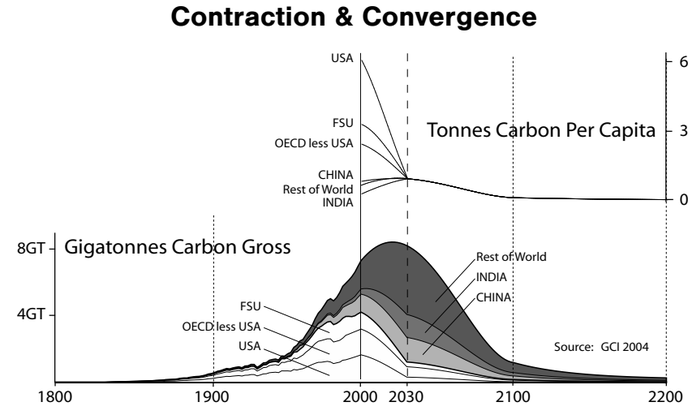
At the core of the argument, C&C does two interlocked things. Taking the fundamental objective of the UNFCCC - safe and stable greenhouse concentrations in the atmosphere - as the primary feature governing the process, the model is a software programme that: -

1. takes any stable greenhouse gas concentration result from the carbon-cycle models and computes the global emissions profile – or "contraction budget" as reported by IPCC as achieving the stable concentration level - specified by the user, and
2. sub-divides this global emissions contraction budget on the basis of starting with the international emissions shares as actually reported in the starting year, and then progressively pre-distributes these as tradable emissions permits over a timeframe specified by the user, so that international shares converge to become equal to international population shares by the date chosen.

Here is an example for 450 ppmv with world as 6 regions converging by 2030: -

GCI regarded C&C as 100% of two inseparable aspects of a single proposition. C&C was the primary calculation necessary to demonstrate stable concentration of greenhouse gas in the atmosphere with first-order intent by intelligent design; it was "globality with equity".

We started in 1990 with the conceptual framework "equity and survival". In developing the calculating framework of global C&C, we came to recognize that it was reflexive not only across space [all countries] but also across time [full-term].



This example shows regionally negotiated rates of C&C.
This example is for a 450ppmv Contraction Budget, Converging by 2030.

The spatial aspect of this was that while there could be "no globality without equity", there could be "no equity without globality" either. Globality meant 100%, or all countries, great and small, involved simultaneously.

The temporal aspect of this was even more subtle. It related to the word 'ultimate' in the 'ultimate objective' of the UNFCCC. The word 'ultimate' means 'fundamental' as in perennial, as much as it means 'eventual' as in outcome. The time left to achieve the objective of the UNFCCC - probably no more than decades - is finite and the clock to its successful attainment is ticking. Globality is therefore across time as well as across space; 100% in the sense of full-term with all countries consciously involved in the overall contraction event from the word go.

If this was only broadly seen at the outset, the focus for it sharpens all the time.
A global full-term emissions contraction budget is required in its 'entirety' to achieve stabilisation especially as concentrations, temperature and damages rise througout,

and convergence, in some manner and at some rate, is an inevitable part of the achievement. C&C immediately connects the means of all parties to these ends in a single full-term calculus. This, the "whole-truth of entitlements" under contraction, is distinct from the "the half-truth of commitments" under business-as-usual, as in the Kyoto Protocol.

The basic C&C proposition is irreducible and by 2003, the secretariat of the UNFCCC affirmed publicly that, *"stabilisation inevitably requires contraction and convergence."* This is not equity for its own sake, but for survival and the US demand for globality tacitly acknowledged all of this from the outset. From 1990, the issue of warming and rising damage had been clearly recognised as, "how much and how soon". From that moment onwards, being governed by this "100% full-term understanding" became - and remains - the lesson we all most urgently needed to take. It is urgent, as nursing false dichotomies and the chaotic politics of blame that has taken root in the UN climate negotiations, cause delay make us forgetful that concentrations, temperature and damages are rising..

The Kyoto Protocol: half-truths and no reconciliation

These had resumed in April 1995 in Berlin. The required degree of support for the ratification of the UNFCCC into force had been achieved and the First Conference of the Parties (COP1) to the UNFCCC got underway with two major rows breaking out.

The first was the Developing Countries led by India. Taking up the row about economic valuation of human life in the IPCC, the Environment Minister Kamal Nath formally wrote to all the delegations saying: -

> *"We unequivocally reject the theory that the monetary value of people's lives around the world is different because the value imputed should be proportional to the disparate income levels of the potential victims concerned. Developing countries have no – indeed negative - responsibility for causing global climate change. Yet they are being blamed for possible future impacts, although historical impacts by industrialised economies are being regarded as water-under-the-bridge or "sunk costs" in the jargon of these biased economists."*

This was when the value-of-life row became conspicuously public. It seethed on and by the end of the year the IPCC published their "Summaries for Policy Makers" written by delegates to, rather than economic experts within, the IPCC who observed: -

> *"The literature on the subject in this section is controversial and mainly based on research done on developed countries, often extrapolated to developing countries. There is no consensus about how to value statistical lives or how to aggregate statistical lives across countries. Monetary valuation should not obscure the human consequences of anthropogenic climate change damages, because the value of life has meaning beyond monetary value. It should be noted that the Rio Declaration and Agenda 21 call for human beings to remain at the centre of sustainable development. The approach taken to this valuation might affect the scale of damage reduction strategies. It may be noted that in virtually all of the literature discussed in this section 1). The developing country statistical lives have not been valued equally at the developed country value 2). Other damages in developing countries are also not equally valued at the developing country value."*

As if the first row wasn't bad enough, the Second row about 'globality' was worse. The Ministerial comment from the Indian delegation summed things up thus: -

> *"We face the actuality of scarce resources and the increasing potential for conflict with each other over these scarce resources. The social, financial and ecological inter-relationships of equity should guide the route to global ecological recovery. Policy instruments such as tradable emissions quotas, carbon taxes and joint implementation may well serve to make matters worse unless they are properly referenced to targets and time-tables for equitable emissions reductions overall. This means devising and implementing a programme for convergence at equitable and sustainable par values for consumption on a per capita basis globally."*

There was a certain irony in this. The US Government maintained their demand for all countries to be included in the control of emissions, yet they didn't respond at this time to this call for globality with equity from what was seen as a 'key developing country'. The problem, then as now, was a lack of clarity and candour about the dilemma. No side trusted another and equity was a battle-ground. The lesson was that if we don't want chaos, we will have to choose against it and this means choosing order in a form that is straightforward enough to win everyone to the globality with equity that avoids the chaos.

While 'deep simplicity' is the norm, complexity was the fashion and economists and other lobbyists found endless ways to fashion it. Some even pressed the view that there wasn't a climate problem at all, and others claimed that the US Government believed this too. This was hard to believe as why would the US ask for a global solution to a problem that didn't exist? However, the environmentalist non-government-organisations [NGOs] claimed the US was not 'sincere' and lobbied for real 'leadership'. So, initiated by some environmental lawyers and the policy directorate of Greenpeace, the Protocol from AOSIS or the "Association of Small Island States" was tabled. Plucking numbers from fresh air, this said developed countries only would have 'mandatory' emission targets that were legally binding to levels 20% less than 1990 levels by 2005 with penalties for 'non-compliance'.

In other words, it lobbied for an arbitrary, punitive and inadequate solution to the fundamental and full-term challenge of global climate change. It was pressed into COP1's "Berlin Mandate" for what would later become the "Kyoto Protocol". The accompanying rhetoric was emotive in more ways than intended. It foretold of climate chaos without it, while saying nothing about the political acrimony and chaos this half-truth would engender. The requirement for stabilising concentrations was simply disallowed. And while the environmental NGOs scolded the US for daring to – let-alone rightly - raise the globality point, the US Government, like everyone else in the process, did indeed find it difficult to deal with 'differentiation' in the global equity point. This would change.

Certainly, as argued by many in Developing Countries, 'equity' encouraged the idea that differentiation meant rights to use of the global commons of the global atmosphere were, in the new real-politik of global climate inter-dependence, equal to people rather than [as in the status quo] merely proportional to their income. If this was so, it certainly took global equity outside the box, which perhaps explained the hesitation. It was not without irony when this moment was lost; it was just as 'globality with equity' for stable concentrations was the over-riding requirement to keep everyone together in it.

The challenge was to avoid the reverse, 'no globality without equity'. It was one to which all parties to the Berlin Mandate did not rise at that time and so a course was proposed for the industrial countries to accept legally-binding emissions control 'first' as an admission of having, albeit in ignorance, caused the climate problem and the rest, albeit with special development pleadings, to accept a blank cheque to make it worse, as a doubtful form of reparations.

This was 'equity without globality and, like all of the politics of blame, a fight for half-truths and no reconciliation. It offered no environmental security to anyone and pushed the thorn of discord into the flesh of the politics from that day to this.

At the beginning of 1996, the IPCC published their "Second Assessment Report" and the row over the value-of-life aside, the memorable feature of this was from the science working group. They collectively agreed the wording that, *"the balance of evidence suggests a discernible human influence on the climate system".* Parties to the UNFCCC negotiations reconvened for the Second Conference in June 1996.

They had to reconcile the strengthened IPCC judgement with the already fractious proceedings under the Berlin Mandate, while the US tore up the AOSIS Protocol as *"unrealistic and unachievable".*

In this atmosphere, the first projections of GCI's C&C imagery shown at COP-2 were clarifying and candid. Because the model could calculate full-term inclusive projections and the results of this could be charted, the basis of the negotiation for globality with equity for stable concentrations could actually be seen. Full colour posters of "Contraction and Convergence" (C&C) were exhibited, bill-board size. The principal all-country image showed convergence to equal per capita shares globally by 2040 under an overall emission contraction that brought emissions down to 40% of 1990 values by 2100; this was a scenario for CO2 concentration at 70% above the pre-industrial level, or 450 ppmv. The effect was salutary. It was a 'Who's Who' in the pollution league tables. Questions were asked. Suggestions were made. Reactions were marked as everybody - great and small - could for the first time 'see' their emissions full-term in relation to those of everyone else.

Some environmental NGOs attacked C&C because it didn't object to emissions trading. But at the end of COP-2, a man appeared at C&C billboard who turned out to be Tom Spencer MEP, soon to become chairman of the Conservative MEPs and subsequently chairman of the European Parliament's Foreign Affairs Committee. But he introduced himself as the president of GLOBE, the Global Legislators' Organization for a Balanced Environment. Within a year under his leadership, GLOBE had convinced parliamentarians on four continents, including the US, to pass resolutions backing C&C as the only way to make the Framework Convention meaningful.

'C&C' Kyoto and the 'Byrd Hagel Resolution'

In March 1997, three months before the US Senate did unanimously passed the Byrd Hagel Resolution, the US Government presented the resolution's precursor to what was then the sixth UNFCCC session on the Berlin Mandate. I read an advance copy of the document and it was clear that conflict lay round the corner; the US proposal required all countries to have 'commitments' by 2005. At the same time it was easily consistent with Contraction and Convergence for the simple reason that the proposal had deliberately omitted to quantify any of the commitments countries were to make.

The US delegation asked for support for their proposal with C&C argument at their press conference. At the end of this standing-room-only event and waves of rage and abuse against the US proposal from government and non-government participants from all over the world, GCI put on record that we supported it as it was consistent with C&C. There was even more uproar. Environmental NGOs denounced this as 'treachery'.

In fact the position was a rational exposition of globality with equity. As such it was a full exposure of the divisive half-truths of the arguments leading to the Kyoto Protocol that have flawed the debate throughout. In response to the challenges of 'globality and equity' and 'can we do enough, soon enough' C&C structures the options.

But already in the 'Kyoto Track', the rhetoric required one half of the world to do what it regarded as too much too soon, while the other half were given permission to do what was clearly too little to late.

Just as the US, Chinese, Indian and many African Governments showed real interest in C&C, the NGOs who had merged to become the Climate Action Network under the direction of Greenpeace, stepped up their attack on the US Government. Within three months they would denounce to US Senate en bloc for its Byrd Hagel Resolution which required all countries to be involved in emission control.

Still at the March session, the head of the Chinese delegation said the C&C images could be read as 'blaming us.' If the Chinese were to take a positive view of this approach, his officials needed to be understand that these were projections of future emissions rights. We put a note on the board to that effect and his officials invited me to Beijing for June.

Immediately before the visit to China, I went to Washington and gave a series of briefings on C&C to bodies such as the Department of Energy, the Environmental Protection Agency, the State Department and the AFLCIO. The views expressed said the C&C model was *"a beautiful piece of work",* and *"an ingenious way to try and solve a very difficult problem"*. In the Energy Department I was told there was only one man to reach in China, Song Jian, the State Counsellor for Climate Change and Population. He was known to the US Government officials as the 'seven megaton gorilla' because he had his finger poised over the start button of a coal-fired development project with annual emissions to match. If the Chinese could be persuaded to play C&C, the view was the US would play too as it would become the only game in town.

In China I didn't see Dr. Song Jian, but I saw many of his officials and that October he himself made the following statement at the closing ceremony of the China Council for International Co-operation on Environment and Development.

> *"When we ask the opinions of people from all circles, many people, in particular the scientists think that 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. Today the per capita consumption is just one tenth of that of the developed countries, one eighth of that of medium developed countries. It is estimated 30-40 years would be needed for China to catch up with the level of medium developed countries."*

Any date of convergence on equal per capita emissions can be portrayed in the C&C model. I was therefore able to adjust it to show the US reaching convergence by 2100 in one scenario and the Chinese by 2010 in another. I showed both countries this and told them that negotiating the date (and hence the rate) of convergence was their problem not the model's. A faster rate of convergence simply meant that high population, low-per-capita emissions countries like China got a larger share of emissions permits sooner. If these permits were tradable, any high-emissions country such as the US which found itself unable reduce its emissions quickly enough, could always buy the permits it would have got itself if the convergence period had been longer.

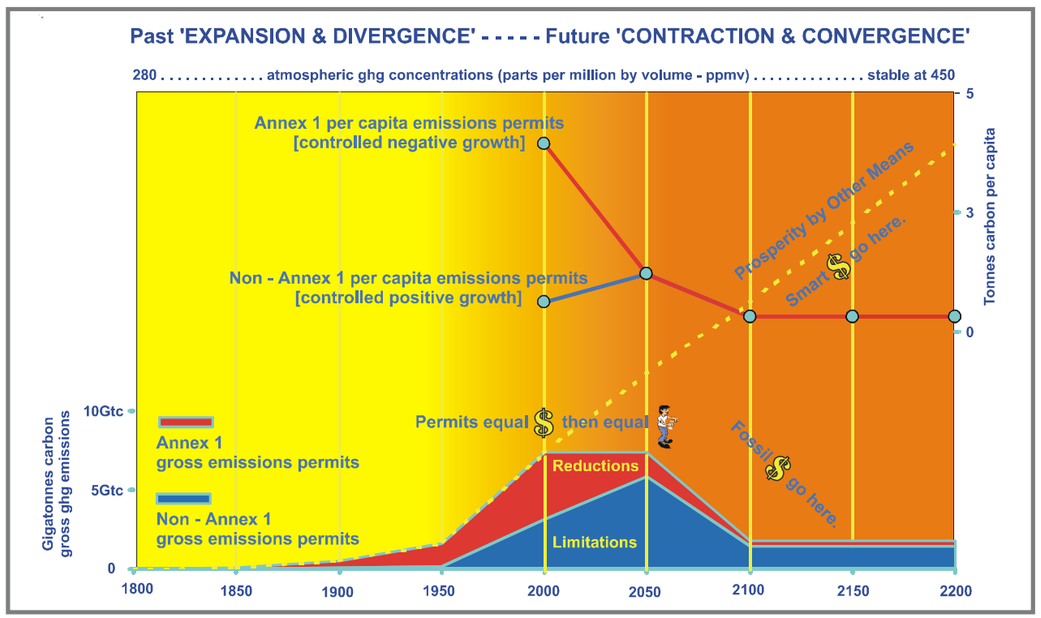
In other words, under C&C, negotiations about the date by which all nations should converge on the same per capita entitlement are about money and resources sharing under limits. Politicians determine the convergence rate. It will be a compromise. Economists would simply advise how best to handle the consequences after the fact.

While I was on my way to China, the US Senate adopted the Byrd Hagel Resolution. It rehearsed again the fatal flaws in Berlin Mandate and the document then being drafted for COP-3 that became the Kyoto Protocol. Alive to the reality of climate change, the intervention tried to reposition the debate around "globality with equity". After eight years of no surrender on global equity, the US Senate conceded differentiation and this was no small shift. Though emissions control commitments would be for all countries on the same schedule, they would quantitatively be of two kinds: - reductions and limitations. 'Reduction' commitments would be controlled and negative growth of emissions or permits for some countries. 'Limitation' commitments would be controlled but positive growth of emissions or permits for the rest. As with the US Government position in March, no single target amount for any country was specified.

> *'Now, therefore, be it Resolved that: - (1) The United States should not be a signatory to any protocol to, or other agreement regarding, the United Nations Framework Convention on Climate Change of 1992, at negotiations in Kyoto in December 1997, or thereafter, which would mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period.'*

The resolution was adopted by 95 votes with none against. The two key distinctions are; between the Annex 1 Parties and the Developing Country Parties and secondly between a commitment to 'limit' ghg emissions and one to 'reduce' them. In this context, limiting ghg emissions means controlling the rate at which they increase while reducing them means controlling the rate at which they are actually cut back. This created a potent dynamic with C&C. When these distinctions are put together, they translate into the permit sharing of C&C. Annex 1 Parties immediately reduce (or contract) their emissions as Developing Country Parties, in the short term, limit their emissions (converging with the Annex One Parties) and then contract. Technically a 'convergence factor' is required. This won't appear by accident but it can by design. Real life complexity will be a function of and not a rebuttal of the deep-simplicity C&C.

How C&C conforms to the Byrd-Hagel Resolution



Over the years, the US has affirmed that: -

1. A global solution to the global problem of climate change is needed.
2. The objective of the UNFCCC, the stabilisation of ghg concentration in the global atmosphere, inescapably requires ghg emissions to contract. [The graph shows them doing so between 2000 and 2100].
3. All countries must be involved in emissions control [2000 - 2200 in the graph].
4. A 'central organising principle' must be applied to determine which countries limit, and which countries cut, their emissions and by how much. (Initially the US said 'all countries will reduce ghg emissions by x% pro rata' [2050 - 2200 in the graph] This was later modified by the Byrd Hagel Resolution to combine 'Reductions' [controlled negative growth] with 'Limitations' [controlled positive growth] giving 'convergence' [2000 - 2050 in the graph].)
5. The 'commitments/entitlements' arising from this controlled contraction and convergence must be 100% tradable.

None of these requirements conflicts in any way with the basic C&C solution, namely achieving equal per capita tradable entitlements for everyone on the planet by an agreed date under a predefined global cap. Can any other formula be developed that fits the US specification as well?

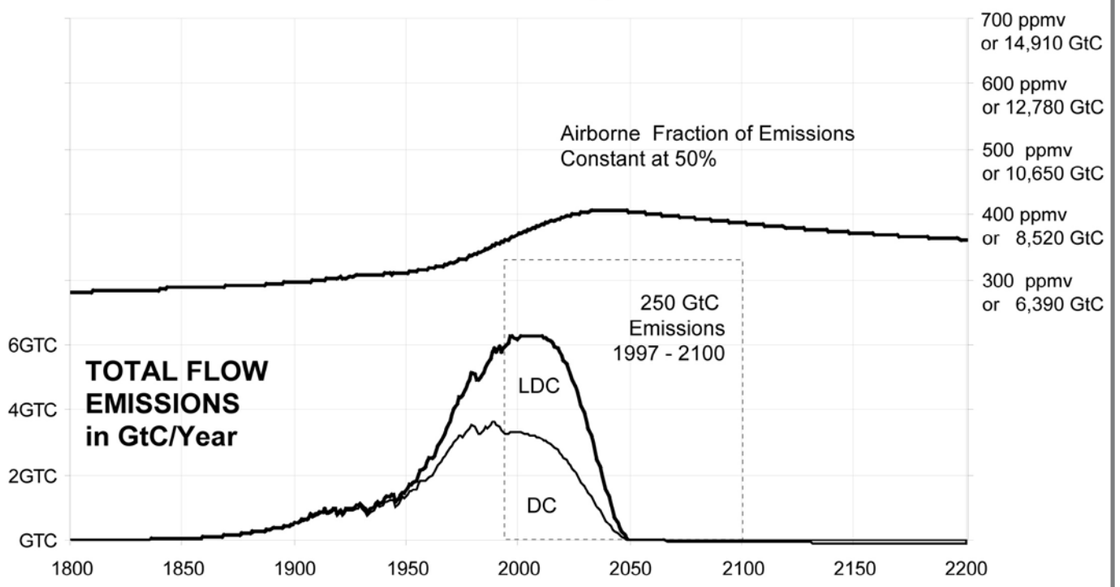
In June 1997, Greenpeace dumped several tonnes of coal on the steps of the US Senate in protest against the Byrd Hagel Resolution calling it "Byrd-Brained". They argued their global *"Carbon Logic"* saying, *"To limit ecological damage, the carbon budget calculated by Greenpeace demonstrates that only 150-270 billion tonnes of carbon may be emitted. If no action is taken to stop deforestation then only around 150 billion tonnes can be emitted."* The Resolution set emissions limitations alongside their reductions with adequacy [amounts] to be determined by something.

The attack on this and C&C by Greenpeace is not so much rational as 'aspirational' as it comes from a position that picked a few numbers out of fresh air with no numerical reference to their carbon logic whatsoever. This lack of a rationale renders any claim for adequacy, equity and globality impossible to validate.

This problem is persistent at the expense of any credible progress. Between 1997 and 2005, the global fossil fuel economy has emitted around 50– 60 billion tonnes of carbon to the atmosphere in a growth pattern. At the time of writing this critique, Montreal COP-11 [December 2005], has just concluded. The Montreal agreement results in the future global emissions path of 6 plus billion tonnes per annum and rising. This means that by around 2020, continuing at something near the present rate of annual global growth [2% p/a] something approaching 200 gigatonnes is likely to have been emitted globally.

According to "The Carbon Logic" this means either we are doomed or emissions will then just cease overnight. However unpalatable, the former proposition cannot be waived aside but the sudden cessation of emissions is entirely improbable. So this approach of 'pick-a-number' is not really helpful. The argument – which is basically between the US and China – needs to be mediated by BH/C&C. There will be stalemate without this and 'blackmail-emissions' will continue to grow and we'll be lucky not to become stuck in these trends for decades triggering dangerous and even chaotic rates of climate change.

The Montreal outcome of COP-11 was negotiated by people who alarmingly know this, many of whom are actively warning of the Armageddon to come. The verdict of Montreal was to keep on talking against these trends as the backdrop. To regards this as 'progress', is completely irresponsible.



A CRITIQUE of the GREENPEACE ATTACK on the BYRD HAGEL RESOLUTION

In 1997, during the Clinton Administration, Greenpeace denounced the US Senate's "Byrd Hagel Resolution". The global numbers show that Greenpeace was well to the right of the US Senate.

Between 1997 and 2050 on the x axis, shows a future contraction budget of emissions totalling 350 GTC with a constant rate of of 50% retention in the atmosphere rising to 400 and back to 360 ppmv.

This 250 GTC is just under the maximum permitted emssions budget Greenpeace used to confront the US Senate in June 1997. The Senate had just unanimously passed the "Byrd Hagel Resolution" [BHR] which required "all" countries to be on the books and in the emissions permit schedule with either Limitation or Reduction commitments.

The maximum Greenpeace permitted was 270 and the minimum 150 GTC. They called this "The Carbon Logic". Using this they denounced the BHR as "Byrd-brained", dumping tonnes of coal on Capitol Hill.

The global effect of combining the:-

[1] Logic of the Byrd Hagel Resolution for globality with,

[2] Kyoto Protocol's 'fatally-flawed' logic of the Developed Countries only targets of the time,

[3] Greenpeace "Carbon Logic", the maximum emissions budget as above,

is shown by the line dividing DC [Developed Country] from LDC [Less Developed Country].

This budget means that there isn't much left globally and, combining all of the above, this is a roughly 50/50 split on permits between the 20% of people in the Developed Countries and the 80% of people living in Developing Countries.

The feature of C&C that deals with this 'distributional justice' in a logical manner is 'convergence-that-can-and-obviously-should-be-accelerated-relative-to-the-contraction'. The Senate's proposal accepted that. In fact when the US requirement for globality is combined with the globe's demands for adequacy and equity, it means that C&C is *"inevitably required"*. This point was effectively agreed at the climax of the COP-3 negotiations in Kyoto in December 1997.

Greenpeace leads the environmental movement's 'climate-action-network' whose motto is, 'justice for developing countries'. But as these words are repeatedly contradicted by their numbers, they take steps to obstruct demonstration of this with C&C, merely asserting that *"C&C doesn't deal with 'historic resonsibilities'"* for past emissions. As the argument is illogical, Greenpeace are increasingly isolated.

‘C&C’ and the ‘Africa Group.

Back at the negotiations in Bonn in August 1997, the Africa Group of Nations took a clear initiative in favour of Contraction and Convergence at the final plenary session.

> *“As we negotiate the reduction of greenhouse gases, the countries of Africa believe that there should be certain principles that need to be clearly defined. There must be limits on all greenhouse gases if the danger to our climate is to be averted. The IPCC scientific assessment report provides us with the basis for global consensus on such limits. A globally agreed ceiling of greenhouse gas emissions can only be achieved by adopting the principle of per capita emissions rights that fully take into account the reality of population growth and the principle of differentiation. Achievement of a safe limit to global greenhouse gas emissions can be achieved by reducing the emissions of Annex One while at the same time ensuring that there is controlled growth of future emissions from Non-Annex One countries, reflecting our legitimate right to sustainable economic growth. We strongly believe that this will take us along a path to responsible climate management that allows us to reach our goal of defining a mutually agreed point of convergence and sustainable development. Such a convergence must ensure that we maintain a global ceiling on emissions to prevent dangerous interference with the climate system.*
>
> *When we look at time frames, we believe that insufficient commitment by Annex One countries will only result in delaying our influence on the climate system. If this course is maintained, then we will all suffer and the burden will be even greater for humanity in general. The burden for any future mitigation efforts on those of who have not been historically and currently responsible for creating the problem will be greater.*
>
> *Mr. Chairman, we must focus our attention on the most appropriate, reasonable and acceptable time frame for action. There is an over-riding pre-requisite. The time frame cannot be too far away into the future if we are to avoid at all costs the dangers that global climate change poses. The current scientific evidence indicates that Africa faces decline in water resources, agricultural production and economic performance. It is therefore for this reason that we wish to register the seriousness with which we view the effective implementation of the Convention and future agreements emanating from it.”*

The Africa Group carried this position through to the end of COP3 in December.

‘C&C’ at COP-3 in Kyoto.

By the time this conference began to discuss the international tradability of ghg emissions entitlements, an increasing number of countries began to see the logic behind the Africa Group’s advocacy of Contraction and Convergence.

By definition, emissions trading cannot occur until the principle of property rights has been agreed and entitlements to the property have been assigned. Very late on the last day, the paragraph in the draft Kyoto Protocol relating to emissions trading came up for acceptance. The US re-iterated its insistence on everyone’s acceptance of emissions trading. The governments of China and India, contrary to widespread expectations, did not reject the idea. Instead they responded by saying that they would agree to emissions trading if ‘equitable allocations’ of emissions entitlements were made to all countries on a per capita basis. The Africa Group restated the C&C structure for this and he US responded, *“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 . . . .”* [See back page].

Kyoto - Politics of Incompleteness: C&C - Intelligent Design

The intellectual battle that has been fought at the UNFCCC has never seriously been about whether there was a climate problem or not. It has always really been about how best to organize and deal with the *"how much, how soon"* of global climate change. To be effective, globality with equity on emissions control or C&C is inevitably required. Even if political fashion suggests otherwise, the accelerated rise in atmospheric concentrations shows the globalisation of this as collective committed action is urgently required.

The UNFCCC was a broad global proposition to this end at the start in 1992. However, various axes of sub-global argument were reactively introduced thereafter that have divided and disabled the debate about adequacy from then until now. These are the marginal 'arguments of incompleteness' such as, *"costs versus benefits", "ability to pay versus willingness to pay", "voluntary measures versus mandatory", "adaptation to climate change versus its mitigation", "technology versus targets"* and so on.

All of the traffic on these axes has maintained at best a tenuous linkage with the objective of the UNFCCC. Since 1992, when Michael Howard the UK Environment Minister introduced the word '**aim**' into the commitments section of the UNFCCC text, the objective of the Convention became ultimate only in the sense of 'aspirational'. Mr Howard says he did it to enable George Bush senior to sign the Convention in Rio. The cost of this however, was to disable the debate about collective adequacy and so delay urgent action.

The Kyoto Protocol is Darwinian and its incompleteness potentially equates with our being collectively unfit to survive. It is the 'evolutionist's' view of climate change and it holds that increments at the margins and 'development' that is merely the unpredictable result of this mostly random process, is good enough. It is the evolutionist's climate-adjusted summary of business as usual. It either doesn't recognize we are already in a struggle to survive or, seeing this as unspeakable, prefers silence and impotence.

There is no-one in this process now who credibly defends the idea that it is 'too much too soon'. Its supporters [for example European Governments] and its detractors [like statistician Bjorn Lomborg and other sceptics like Myron Ebell of CEI] all agree that the effect of Kyoto on the atmospheric concentration of CO2 and avoiding climate change is marginal to the point of being undetectable; while the atmosphere accumulates carbon gases measured in billions of tonnes of carbon, Kyoto avoids emissions of these measured in mere million of tonnes. So when Kyoto's detractors say 'why bother', defenders say, 'we will do better!' Some detractors then become fatalists and assert the inadequacy point harder by saying, 'why bother, it is all too little too late.' In doing this, some of the sceptics then go without a blush from a previous attitude of 'no-problem' to one for the future called 'no-solution'.

But, their criticism of Kyoto's inadequacy cannot just be swept aside in favour of fatalism. The situation is developing and a 'second phase' of Kyoto ["five more years", with a third phase and so on beyond that] is proposed. This is what Kyoto's defenders now assert is the adequate answer and the only answer. Yet the adequacy of this evolutionary model is not demonstrated, calculated or even really contemplated. Though it is incomplete, it is from this position that its defenders position C&C as a slogan or an 'outcome' and stable concentrations as an aspiration. All this Panglossian thinking is no less dangerous than climate change itself because it rests on the illusion that infinite growth is achievable.

The laws of physics that govern and change global climate are immutable and irresistible. If we continue to accumulate heat-trapping gases in the atmosphere, even at no

more than the rate we have been since industrialisation, the extra heat trapped will increase climate instability and turbulent weather towards and sharply into, not away from danger. Avoiding this depends on reading the worsening trends as the reason to chart a course away from danger by intent and design. Any political economy of future development on planet earth that is viable has to avoid dangerous rates of global climate change by actually achieving the objective of the UNFCCC. Seeing this goal as merely 'long-term' and 'aspirational' and the result of natural selection, amounts to 'hoping to' achieve it and is absurdly relaxed about the prospects of failure. If we are committed to the goal, achieving it will be consciously embraced by the goal-specific gravity of C&C and fundamentally organised to this purpose now, whatever rates are required for success. Seeing C&C merely as the outcome of an aspiration to avoid dangerous climate change allows for what will become for our children the agony of failure and chaos.

The *"how much, how soon"* questions posed at the outset by US Delegate to SWCC in November 1990, John Knaess were spot on. They led straight to the key axis of completeness which is, *"too much too soon versus too little too late."* This challenge led to the intelligent design of the UNFCCC, and the politics of inclusion and globality as defined in the US Senate's Byrd Hagel Resolution. It also led to "Contraction and Convergence" (C&C) that structures globality, equity and adequacy to the key issue, *"can we do enough soon enough?"* Can we win what is a race against time? Damages from climate change are growing at an average of 6% a year, at least twice the rate of fossil-fuel burning economic growth. This means the odds steadily worsen as we continue to make the problem more rapidly than we act to control and avoid it. With Kyoto's axes of incompleteness, we entrench almost apartheid-like politics of separate rather than sustainable development. This undermines our collective response to avoid dangerous climate change and answer the question, *"can we do enough, soon enough?".*

C&C is fundamental to answering this question. Its global logic is irreducible. Whatever rates we agree, and then almost certainly revise, the basic aim and structure of the argument remains constant. In that sense it embodies a prerequisite of any intelligent design – stability through internal consistency. This is what the policy community has to focus on. 'Telos' or goal-focus, intelligent design and intent are fundamental and now urgent.

"Doing Enough, Soon Enough"

This means avoiding being globally tonne foolish and adopting locally tonne wise. The latter is the personal rationing of DTQ. The former is being clear about these choices:-

Last two images compare C&C budgets for 350 and 450 ppmv, as per the orginal carbon-cycle modelling of the Bern Carbon Cycle model runs.

In each image: -

[a] three rates of atmospheric accumulation and

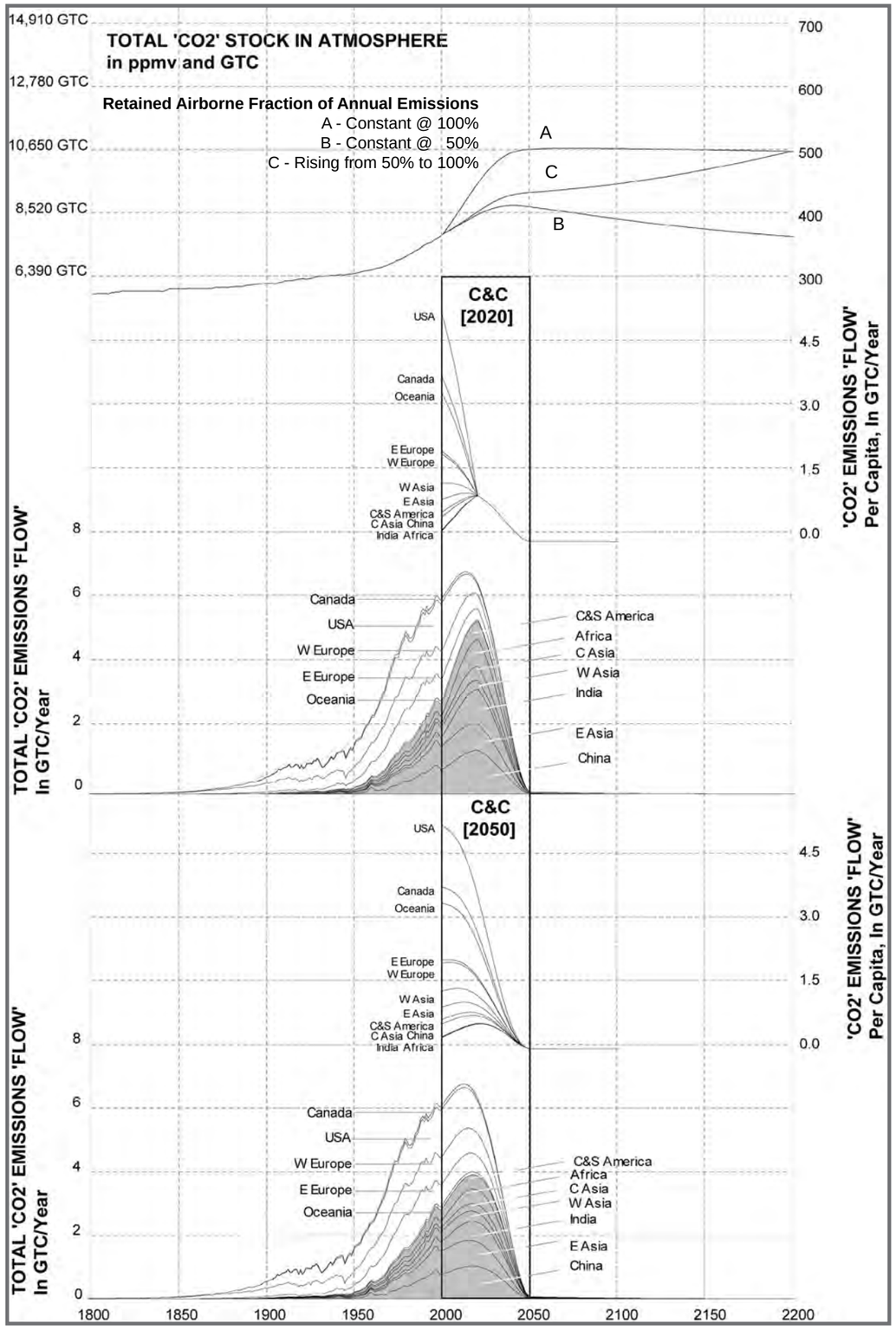
[b] two rates of convergence

are projected.

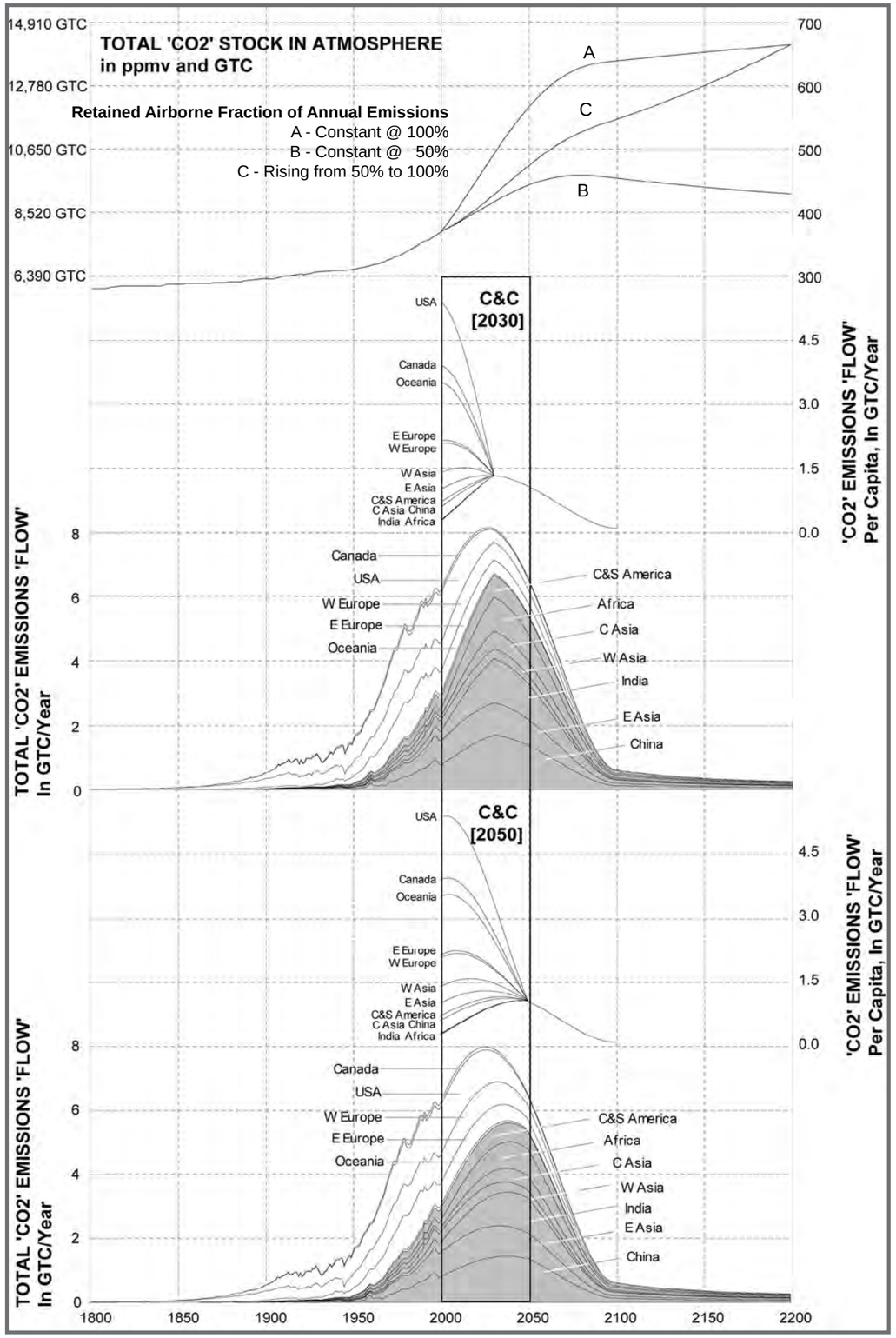
If the Accumulation curves are regarded as proxy for damages, and if the mean case is regarded as the more likely the more contraction is delayed, aiming to be nearest the 350 case appears to the only option left to avoid a future where the rise in concentrations becomes uncontrollable.

In these circustances, convergence accelerated-relative-to-the-rate-of-contraction is the only option left for persuading the majority world to join in with emissions control, the alleged cost of doing this is a necessary part of the net-benefit of avoiding chaos.

FULL CONTRACTION BY 2050 & FULL CONVERGENCE BY 2020 or 2050



FULL CONTRACTION BY 2100 & FULL CONVERGENCE BY 2030 or 2050



C&C briefing with references is at: - www.gci.org.uk/briefings/ICE.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**.

http://www.gci.org.uk/presentations/RSA_C&C_G-8_Quotes.pdf

Many individual 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

The network of support for the C&C framework is now considerable. With its initial introduction in 1990, C&C was established and has been on the record as a formal well-supported position at the UNFCCC since 1996: -

http://www.gci.org.uk/briefings/zew.pdf
http://www.gci.org.uk/briefings/UNFCC&C_A_Brief_History_to1998.pdf
http://www.gci.org.uk/Endorsements/UNEPFI5f.pdf

Indeed 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": -*

http://www.gci.org.uk/UNFCCC/C&C_Janos_Pasztor_UNFCCC.pdf

The Africa Group of Nations have supported C&C since before COP-3 1997, United Nations Framework Convention on Climate Change (UNFCCC): -

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

The transcript of COP-3 Kyoto as C&C was agreed at climax of COP-3 in 1997: -
http://www.gci.org.uk/temp/COP3_Transcript.pdf

The C&C Booklet 13 languages from COP-11 12/2005: -
http://www.gci.org.uk/briefings/MONTREAL.pdf

An archive with a 15 year history of this campaign: -
http://www.gci.org.uk/Archive/Mega_Doc_1989_2004.pdf

The Urgency Briefing: –
"Can we do Enough Soon Enough: History and Future Airborne Fraction of Emissions Increasing"

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

shows some of the serious consequences of substituting the politics of blame for global strategy, and highlights the risks of atmospheric concentrations rising much faster than originally supposed because the fraction of emissions retained in the atmosphere is increasing, above the acceleration of emissions per se.

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: -

http://www.gci.org.uk/correspondence/Meacher_15_11_02.pdf

and in 2004 by the House of Commons Environmental Audit Committee: -

http://www.gci.org.uk/correspondence/EAC_response_GCI_300904.pdf

cross-reference C&C briefing: - www.gci.org.uk/briefings/ICE.pdf

C&C briefing to the May 2006 all-party enquiry into climate-consensus: -

http://www.gci.org.uk/briefings/APGCCC_Evidence_single_A4_pages.pdf

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The view from The Edge A series of debates on the looming energy crisis has concluded

On 3 May, The Edge held the last of a series of three debates on energy and climate change. As a result, the Edge urges the built environment institutions to make Contraction and Convergence a core concern, given their wider duties of public care.

To explain what C&C is, it is perhaps best to start in Exeter. At the Exeter conference "Avoiding Dangerous Climate Change" in February 2005, the prime minister asked scientists what the upper limit on carbon dioxide concentrations should be: they said 400 parts per million by volume. Above 400, the possibility of runaway global warming cannot be ruled out. This could mean 50°C surface temperatures, few plants outside the polar regions, and perhaps hundreds of thousands of years for the climate to recover – mutually assured destruction, to use a phrase from the Cold War. And where are we now? 380 ppmv in 2005 and rising at 2 ppmv per year – so perhaps 12 years from the tipping point.

If we act with urgency, the tipping point might be a bit further away. The global problem can only be solved by co-ordinated international action. We have all got to share the cut in emissions. This has to be negotiated. The problem is how. The Kyoto protocol has been a good start but it is inadequate. It is soon to expire, its targets bear no relation to the task in hand (looking for 10% savings when something more like 90% is required) and it does not include some key players, such as the USA, China, India and Brazil.

> The Kyoto protocol has been a good start but it is inadequate. It is soon to expire and its targets bear no relation to the task in hand

We need a system that all countries will adopt. If any country does not sign up, then carbon-intensive industries are likely to move there. Cutting to the chase, carbon production may well have to be rationed according to population. China has argued effectively that since the industrial revolution 95% of the atmospheric resource has already been taken, largely by the West. Therefore China and other developing nations should have a larger share (per capita plus) of the remaining 5%.

This is what C&C is all about. Contraction is progressively reducing global emissions to meet a maximum level, say, 450. Convergence is a programme to move towards an equal share per inhabitant of the planet. This means that individuals in the developed countries will need to reduce their emissions by a factor of between five and 10, while those in developing countries have a chance to grow.

C&C could be the road map for a treaty to replace Kyoto. There is certainly a lot of support for it. *New Scientist* has described it as Kyoto Plan B. The UK's Royal Commission on Environmental Pollution and the German Advisory Council on Global Change have recommended it to their respective governments. The Africa Group of Nations has formally proposed it to the UN where it has been ratified. The European parliament passed a resolution in favour of C&C in 1998, it has been codified as a bill before the UK parliament (with the second reading due on 1 June this year). The Liberal Democrats, Plaid Cymru and the Scottish Nationalists all advocate it.

The importance of C&C came as the conclusion to three Edge debates on energy – supply, demand and balance, and was introduced by its main advocate Aubrey Meyer, of campaign group the Global Commons Institute. But how can we bring it down to earth? In this talk of international agreements, how can the Edge (a ginger group of professionals with an interest in the built environment) in the UK (a small country that currently releases 2% of the world's CO_2) really make much of a difference?

As it happens, in a number of ways. The UK can show leadership, by demonstrating how a developed country can reduce its emissions while maintaining the health and well-being of its population. And everybody can help in this – as Lord Oxburgh, the former chairman of Shell, said at the third debate, a personal response is the fastest and cheapest way of reducing CO_2 emissions.

But what about our institutions, particularly the built environment ones, which are the first point of contact for The Edge? Far from being remote and beyond their influence and concern, participants argued that the Kyoto successor treaty was central to all that they hope to achieve, given their wider duties of public care. As global bodies, they can play an important part in the coming debate and show the way to appropriate solutions. Otherwise, it would not be long before people began to ask: "Why weren't they prepared?" and "Why did they continue to encourage investment in the wrong things?"

The chairman took a vote on whether the institutions should put C&C on their high level agenda and make it absolutely core to all they were about. The support was unanimous.

We need to resolve a catch-22 situation on climate change between the private sector and the government. The government feels limited in its ability to introduce new policy because it fears business resistance while, in the absence of long-term policies, companies are unable to scale up investment in low-carbon solutions. In the discussion afterwards, several people tried to identify the downsides for the institutions, but nobody came up with anything. It will be interesting to see how they respond.

The Edge is a think tank set up to address social and political issues in the built environment. Log on to www.at-the-edge.org.uk, and see www.gci.org.uk/briefings/ICE.pdf for more on C&C.

that UK construction can lead the way in developing 'Kyoto Plan B'. Adam Poole reports

See also current edition of The New Statesman: -

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

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.

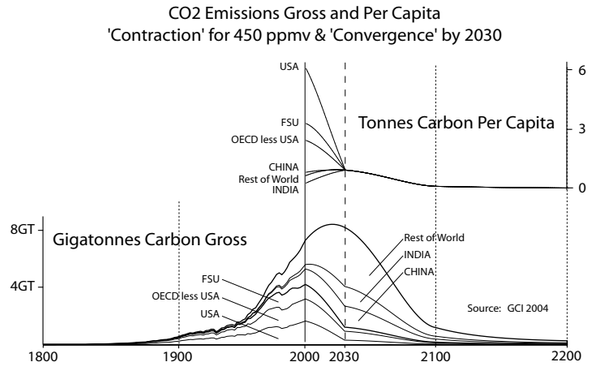
After "entitlements, the global ceiling date and time for Contraction and Convergence of global emissions because we do think that you cannot talk about trading if there are not entitlements, also there is a question of Contraction and Convergence of global emissions that comes into play when you talk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

CHAIRMAN Raul [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
http://www.gci.org.uk/Archive/Mega_Doc_1989_2004.pdf