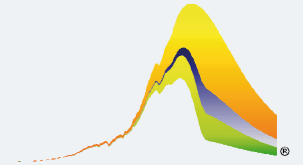


GCI MEMO to UNFCCC

Regarding Decisions at COP-17 for 'increased ambition' Increased Ambition = Accelerated Convergence.



Support for this proposal here: - http://www.gci.org.uk/UNFCCC_Submission_Co-Signatories.html

Negotiating UNFCCC-compliance globally, *Accelerating the rate of Convergence relative to the rate of Contraction* provides **the Main International Equity Lever.**

“C&C has the virtue of simplicity. Equal per capita emissions is a natural focal point. Contestable computations based on economic variables do not need to enter the allocation formula.”

Review of Climate Change Economics to the Australian Government by Ross Garnaut - 2008

“Since the principle of ‘contraction and convergence’ was first proposed by the Global Commons Institute in 2000, it has been widely embraced by some industrialised countries. Under contraction and convergence, each country will start out with emission entitlements equal to its current real emissions levels, and then, over time, converge to equal its per capita entitlements, while the overall global budget contracts to accommodate the emissions reduction objective. The convergence principle should be applied immediately rather than later as the ‘converged point’ in the future. ‘Real emissions’ is a different concept to ‘emissions entitlement’. A country’s high/low per capita real emissions cannot justify its high/low emission entitlements. In the process of convergence, the rights and interests of country B are really infringed by country A. In the National Emissions Account-based solution, the concept of convergence can still be incorporated, but it now merely means ‘convergence of real emissions’ rather than ‘convergence of emission entitlements’. Each country’s gaps between its emission entitlements and real emissions need to be balanced by the traded emissions quotas.”

Development Research Council to the Chinese Government - 2009

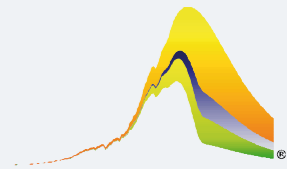
“We believe that it is difficult to imagine a global deal which allows the developed countries to have emissions per capita which are significantly above a sustainable global average.”

UK Government’s ‘Committee to the Climate Change Act’



Aubrey Meyer
Director
Global Commons Institute [GCI]
57 Howard Road
LONDON E17 4SH
<http://www.gci.org.uk>
Ph 0208 520 4742

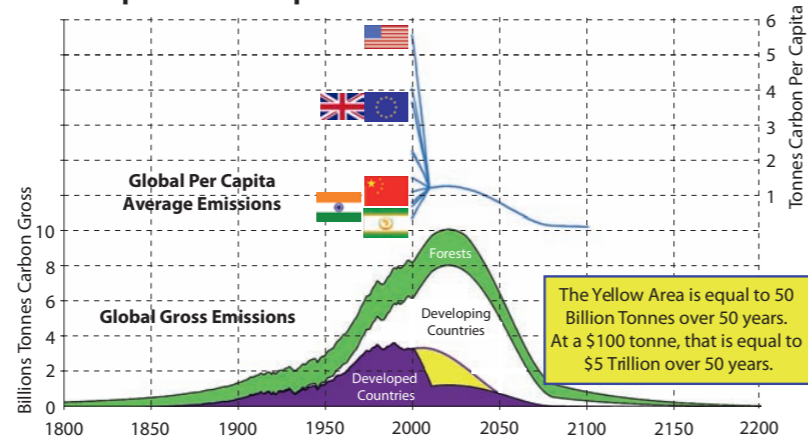
To have an agreement that resolves 'Historic Responsibilities',
 Negotiate Accelerated International Convergence of *Per Capita Emissions Entitlements*
 [as distinct from Per Capita Emissions per se] by 2010 or 2020 or 2030 or 2040 or 2045 or by 2050.



Developing Countries Start Negotiating from Here



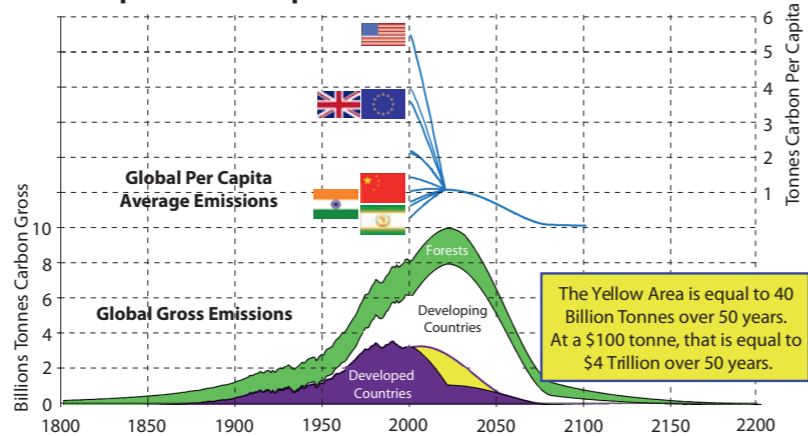
Convergence by 2010 to Globally Equal Per Capita Emissions Entitlements



Convergence by 2010
 \$5 Trillion



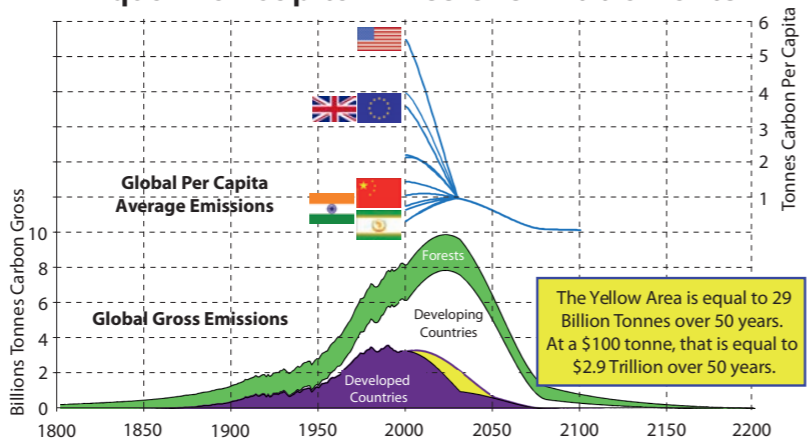
Convergence by 2020 to Globally Equal Per Capita Emissions Entitlements



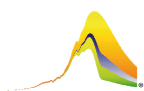
Convergence by 2020
 \$4 Trillion



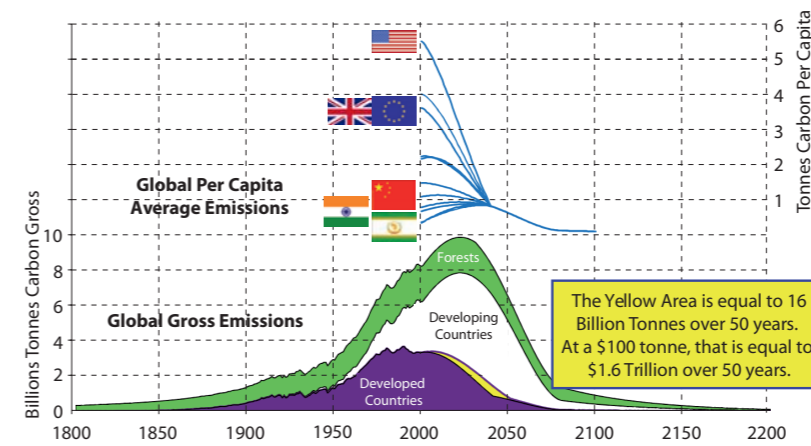
Convergence by 2030 to Globally Equal Per Capita Emissions Entitlements



Convergence by 2030
 \$2.9 Trillion



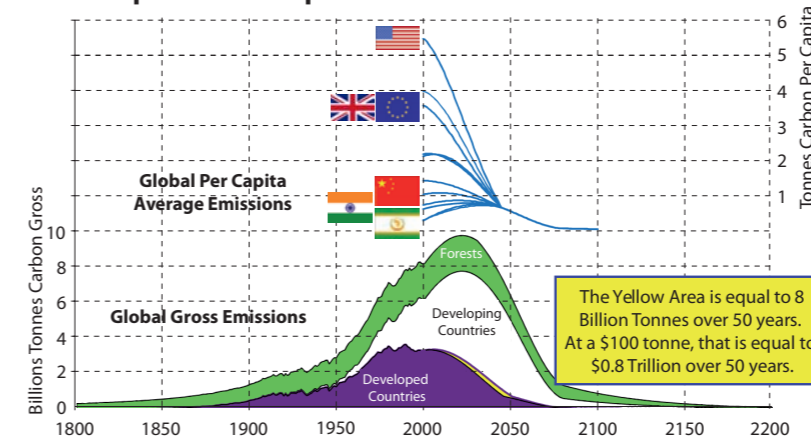
Convergence by 2040 to Globally Equal Per Capita Emissions Entitlements



Convergence by 2040
 \$1.6 Trillion



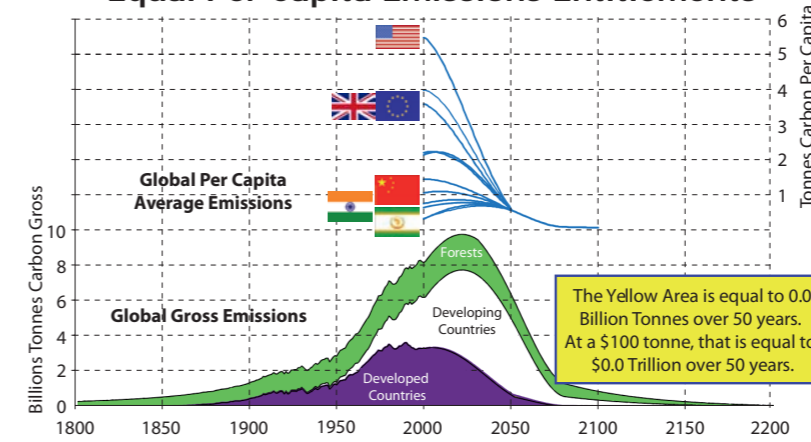
Convergence by 2045 to Globally Equal Per Capita Emissions Entitlements



Convergence by 2045
 \$0.8 Trillion



Convergence by 2050 to Globally Equal Per Capita Emissions Entitlements



Convergence by 2050
 \$0.0 Trillion



Developed Countries Start Negotiating from Here

Contents

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Page 2	Contents & UNFCCC decisions [COP-17] for 'increased ambition'
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Page 4	Charts with distributive effect of different convergence rates
Page 5	Notes to memo and links to references

Annexes & Movie below, are in the full document at: -

http://www.gci.org.uk/Documents/GCI_to_UNFCCC_and_Movie_.pdf

Save this file as an Adobe Acrobat File [pdf] and read in the current 'Adobe Acrobat Reader'. Animations on page 11 & the Movie on page 12 become 'active' when 'mouse-clicked'.

Page 6/7	Original C&C Briefing
Page 8	Graphic overview of UNFCCC-compliance
Page 9/11	Article in UNEP's 'Climate Action' on graphic overview
Page 11	Animations of different rates of C&C as laid out in IPCC

C&C Movie from the C&C Foundation

<http://www.candcfoundation.com/>

Page 12	Movie shows a strategic approach to negotiating international agreement for achieving UNFCCC-compliance.
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[1] The 'convergence-rate' is the 'main equity lever':
the faster the rate of convergence, the greater the extent to which
'historic responsibilities' are compensated for.

[2] Regional grouping between countries - for example between India
and China - the greater the bargaining power for achieving a result
with '*convergence accelerated relative to contraction*'.



United Nations

UNFCCC/CP/2011/L.10



Framework Convention on Climate Change

Distr.: Limited
10 December 2011

Original: English

1. Decides to extend the Ad Hoc Working Group on Long-term Cooperative Action under the Convention for one year in order for it to continue its work and reach the agreed outcome pursuant to decision 1/CP.13 (Bali Action Plan) through decisions adopted by the sixteenth, seventeenth and eighteenth sessions of the Conference of the Parties, at which time the Ad Hoc Working Group on Long-term Cooperative Action under the Convention shall be terminated;
2. Also decides to launch a process to develop a protocol, another legal instrument or a legal outcome under the Convention applicable to all Parties, through a subsidiary body under the Convention hereby established and to be known as the Ad Hoc Working Group on the Durban Platform for Enhanced Action;
3. Further decides that the Ad Hoc Working Group on the Durban Platform for Enhanced Action shall start its work as a matter of urgency in the first half of 2012 and shall report to future sessions of the Conference of the Parties on the progress of its work;
4. Decides that the Ad Hoc Working Group on the Durban Platform for Enhanced Action shall complete its work as early as possible but no later than 2015 in order to adopt this protocol, legal instrument or legal outcome at the twenty-first session of the Conference of the Parties and for it to come into effect and be implemented from 2020;
5. Also decides that the Ad Hoc Working Group on the Durban Platform for Enhanced Action shall plan its work in the first half of 2012, including, inter alia, on mitigation, adaptation, finance, technology development and transfer, transparency of action, and support and capacity-building, drawing upon submissions from Parties and relevant technical, social and economic information and expertise;
6. Further decides that the process shall raise the level of ambition and shall be informed, inter alia, by the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, the outcomes of the 2013–2015 review and the work of the subsidiary bodies;
7. Decides to launch a workplan on enhancing mitigation ambition to identify and to explore options for a range of actions that can close the ambition gap with a view to ensuring the highest possible mitigation efforts by all Parties;
8. Requests Parties and observer organizations to submit by 28 February 2012 their views on options and ways for further increasing the level of ambition and decides to hold an in-session workshop at the first negotiating session in 2012 to consider options and ways for increasing ambition and possible further actions.

Inclusive global rationale for UNFCCC-compliance needed now.

The increased ambition called for at COP-17 by the UNFCCC Parties requires we now quantify and demonstrate an inclusive global rationale to achieve UNFCCC-compliance. This was recognized by India, China, the USA and the Africa Group at COP-3 in Kyoto in 1997. [See note 0].

Contraction & Convergence [C&C] 'Inevitably required' for UNFCCC-compliance.

The objective of the UNFCCC is safe and stable Greenhouse Gas concentration in the global atmosphere. As the cost of failure is incalculable, in a measured and time-dependent way, we must 'do-enough, soon-enough' to quantify, arrange and then achieve compliance' with that objective.

C&C is a rational calculating model, but also a 'negotiating mechanism' to do just that. However, before it is a 'flow-process', C&C is a 'stock-concept'. It is non-random and logical. As such it has been called 'An Incontestable Truth' by an All-Party Group of UK MPs [See note 8]. The UNFCCC Executive took the position at COP-9 in 2004 saying C&C is 'inevitably required' for UNFCCC-compliance [See note 1].

C&C integrates two primary issues needed for this; it now has much support.

C&C was first proposed to COP-2 UNFCCC in 1996 by GCI. The purpose is to help UNFCCC negotiators integrate, quantify and reconcile the two primary issues they are still faced with, to achieve 'climate-justice without vengeance'. It is offered again now, along with some of the support that it has generated since then. The depth and diversity of this support is now very considerable [See note 8].

[1] **Contraction:** The 1st issue is to quantify the full-term global greenhouse emissions contraction-event that is inevitably required for UNFCCC-compliance. For reasons of 'urgency', the question is what 'path-integral' [full-term, rate, carbon-weight, date] of the global emissions contraction-event do we jointly need to estimate and agree is needed for UNFCCC-compliance? Another way of asking this, is how much carbon consumption is still 'safe' globally', if dangerous rates of climate change are to be avoided? We must be guided by the need to solve this problem faster than we are creating it.

Empirically, estimating the global emissions contraction-event is primarily a science-based judgement. So here the UNFCCC is largely dependent on the IPCC's estimates of 'climate-sensitivity' and global monitoring of source, sinks and stocks of Greenhouse Gases [GHG] that are active in the Earth's climate system. As all we can control are GHG from human sources, C&C pays particular attention to those.

[2] **Convergence:** The 2nd issue is to resolve the question arising as to how we integrate and internationally share that contraction-event in a rational and transparent manner. An international convergence of shares under a global contraction-event is inevitable. So the key question here is how will this sharing arrangement of permissible future 'emissions-rights' come about?

Will it result from [a] random guesswork [b] a better-intentioned network [c] a continuing aspirational patchwork [d] or now finally adopting the 'constitution' of C&C's rational and inclusive framework?

Politically, this is a primarily an equal-rights-based judgement and therefore a constitutional issue. C&C assumes that, as any defence of unequal rights will lack support internationally, equal rights is the only logically defensible position, politically.

International Shares must sum to no more than total of Contraction-Event

However, the shares or emissions-rights arising are rational fractions of the contraction-event needed for UNFCCC-compliance. Shares must sum to no more than the total weight of emission-rights available under that contraction-event. This is a logical - and not an ideological - requirement. So, possibly with a population base-year being chosen for the accounts, all shares for all Countries [or Regions of Countries] result from an accounting procedure that calculates how shares result from an international convergence on the global per capita average of consumption arising under the contraction-event chosen for UNFCCC-compliance. As a first order argument, this is the incontestable truth of C&C.

There are no contestable ideological assumptions or economic computations in the model whatsoever.

Logic precedes contestable economic computations & ideological assumptions

Attempting to calculate global UNFCCC-compliance any other way, is to remain stuck in the contestable ideological assumptions and economic computations that have bedevilled the negotiations for the last twenty years. This ideological dead-lock has made consensus impossible and these computations and assumptions have made UNFCCC-compliance, unquantifiable, un-negotiable and un-achievable.

C&C, Historic Responsibilities & the 'Main Equity Lever'.

Inequity attends the 'historic responsibility' for causing climate change with emission accumulated in the atmosphere since 1800. To redress this & offset the future opportunity cost to fossil-fuel-based development in developing countries, the 'main equity-lever' is negotiating a rate of convergence that is significantly accelerated relative to the rate of contraction [Prof Ross Garnaut].

Accelerated Convergence - 'Emissions Entitlements' are not 'Emissions per se'.

As the Chinese Government has stressed, since global carbon-trading requires that the 'emissions entitlements' are tradable these are necessarily different from emissions per se. The faster the convergence rate is relative to the contraction-rate, the more the 'equity-share' is transferred from the accounts of those consuming carbon above the global per capita average to the accounts of those consuming carbon below that average. So under-consumers have a mechanism with which to leverage their position 'at the expense of over-consumers', while - crucially - all remain subject to the contraction rate, weight & date agreed for UNFCCC-compliance. The question is what rate of convergence [fast/slow] relative to the contraction rate agreed, can the international negotiations bear?

Turn Kyoto's 'market-based framework' into C&C's 'framework-based-market'.

Integrated this way, C&C turns Kyoto's aspirational 'Market-Based-Framework' into a rational 'Framework-Based-Market'. Agreeing the rates of C&C is the primary task and this is primarily the task for UNFCCC negotiators. This approach does not preclude additional side-agreements of any kind.

Making Regional Groupings makes negotiating headline rates of C&C easier.

GCI does not presume to prescribe what the rates of C&C must be. GCI's role has simply been to demonstrate [quantify & visualize] linking the range of contraction-rates examined in the global 'science-debate' to the convergence-rates involved in the international 'policy-debate' [see note 3]. However, GCI feels it would certainly facilitate policy negotiations if India and China [& others] grouped together as regions in the way for example the EU acts as a region, as this would remove intra-regional negotiations from the COPs to the UNFCCC and negotiations would be more 'strategic'.

C&C & a negotiating example, based on what happened at COP-15.

At COP-15 in December 2009, the UK was part of a group of Governments that *prescribed* the rates of C&C that are in the UK Climate Act [see 4]. They prescribed that convergence to globally equal per capita shares should complete by the year 2050, but by when 80% of the available carbon budget was used up.

Right principle prescribing wrong rates at COP-15: negotiate rates at COP-18.

This was the right principle but *prescribing* the rates was a mistake. Moreover, it was prescribed at rates that were unacceptable to the majority [see note 5] & it was rejected by the non-annex One countries. Understanding this reason for that failure and correcting it is key to any future success.

Already in July 2009 the Chinese Government wrote that those rates of C&C were acceptable for per capita emissions per se, but for equal per capita emissions-rights or 'emissions-entitlements', they were looking for a 'global climate deal' with immediate convergence, rather than the gradual convergence over a 40 year period to 2050, by when 80% by weight of the global emissions-budget would have been used up [see note 6]. Negotiators now need to close the 'convergence-gap' between now and 2050.

It is crucial to note that technically with 'emissions-trading' these two positions are quite compatible. Politically, the 'gap' between them can better be resolved through more clearly quantified negotiations, than with more opaque 'prescriptions' by sets of Governments, complicated by 'lobbying' from sector interests loaded with contestable economic computations and ideological assumptions.

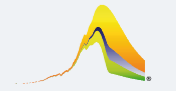
Negotiating Convergence Rate: 2010, 2020, 2030, 2040, [COP-15 prescribed 2050].

The intervening positions on the rate of convergence, with weight and value [\$100/tonne] are: -

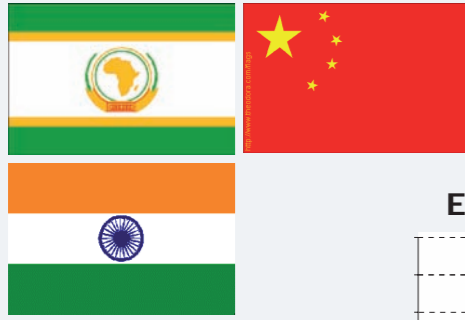
Convergence by Year	Weight of Carbon Rights transferred to LDCs in Billions Tonnes Carbon [Gt C]	Value of Carbon Rights transferred to LDCs over 40 years @ \$ per tonne carbon
2010	50 Gt C	\$5.0 trillion
2020	40 Gt C	\$4.0 trillion
2030	29 Gt C	\$2.9 trillion
2040	16 Gt C	\$1.6 trillion
2045	8 Gt C	\$0.8 trillion
2050	0 Gt C	\$0.0 trillion

Negotiating Equitable Access to Future Global Commons Atmosphere

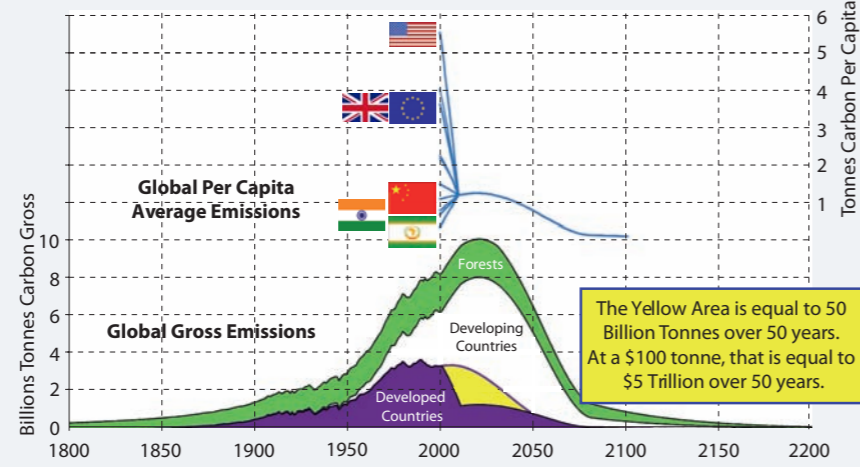
Full Animation of this at: - http://www.gci.org.uk/animations/COP_15_C&C.swf



Developing Countries Start Negotiating from Here

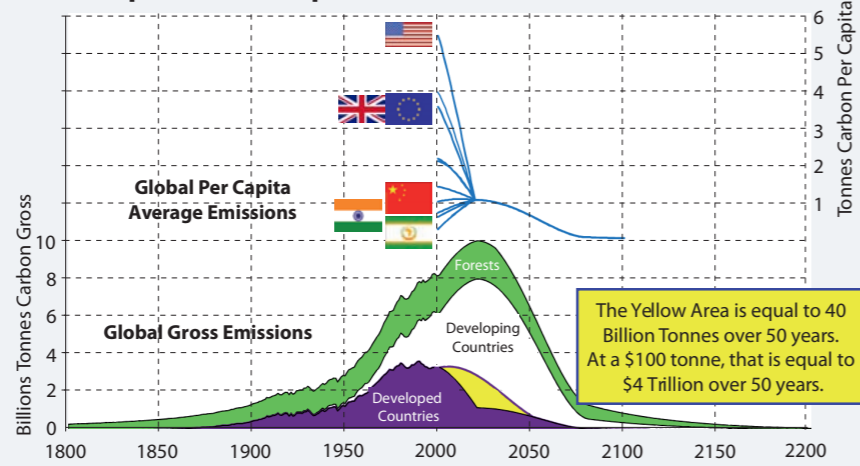


Convergence by 2010 to Globally Equal Per Capita Emissions Entitlements



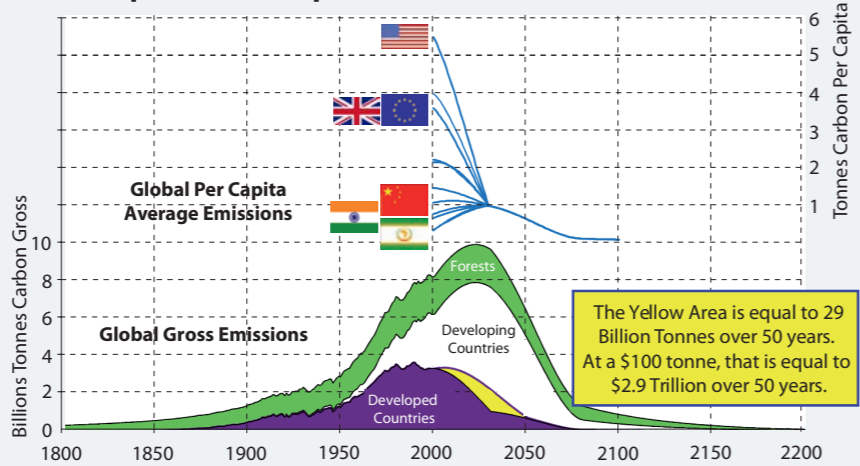
Convergence by **2010**
\$5 Trillion

Convergence by 2020 to Globally Equal Per Capita Emissions Entitlements



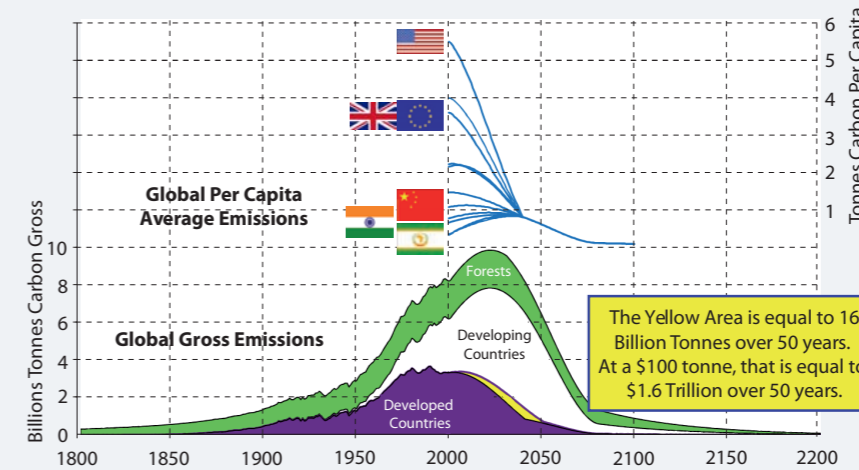
Convergence by **2020**
\$4 Trillion

Convergence by 2030 to Globally Equal Per Capita Emissions Entitlements



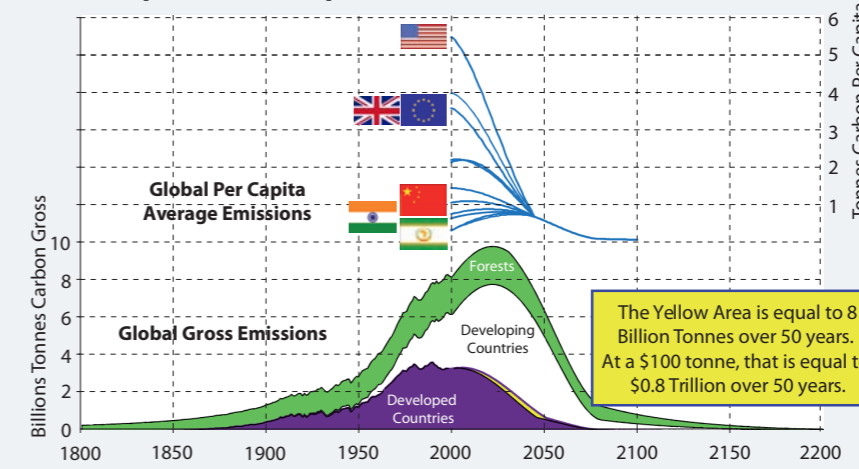
Convergence by **2030**
\$2.9 Trillion

Convergence by 2040 to Globally Equal Per Capita Emissions Entitlements



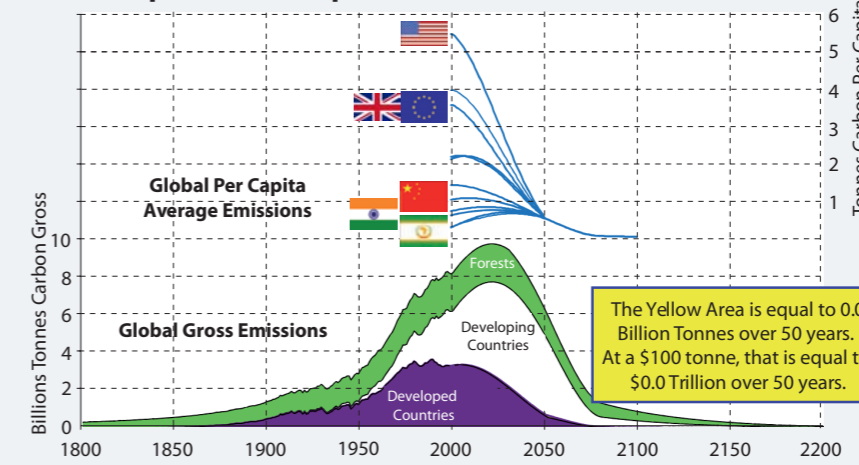
Convergence by **2040**
\$1.6 Trillion

Convergence by 2045 to Globally Equal Per Capita Emissions Entitlements



Convergence by **2045**
\$0.8 Trillion

Convergence by 2050 to Globally Equal Per Capita Emissions Entitlements



Convergence by **2050**
\$0.0 Trillion



Developed Countries Start Negotiating from Here

NOTES

[0] Transcript of the final session at COP-3 1997: -
http://www.gci.org.uk/COP3_Transcript.pdf

[1] C&C 'Inevitably required': -
http://www.gci.org.uk/C&C_Janos_Pasztor_UNFCCC.pdf

[2] High Level Statement, Asian Development Bank, Manila June 2009
"The framework of contraction and convergence provides a flexible methodology to address the problem of allocation of emission rights. The contraction of overall world emissions pursued along with the convergence of countries' average per capita emissions, allows developing countries to partake of the carbon budget. The per capita entitlements approach is an effective one in that it takes into account historical responsibility and is based on the egalitarian distribution of the commons, within which international justice positions of causal responsibility such as the 'polluter pays principle,' come in."

Ursula Schäefer-Preuss - Vice President of ADB.

Haruhiko Kuroda - President and Chair ADB Board.

Ban Ki-moon - Secretary General of the United Nations.

Rajendra Pachauri - Director of TERI, Chair IPCC.

Yvo de Boer - Former Executive Secretary UNFCCC.

Gloria Macapagal Arroyo - President Philippines.

Zhou Dadi - Chief advisor national energy strategy, People's Republic of China.

Full Signatory List to this statement of over thirty eminent people: -

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

[3] Rates of C&C: -
<http://www.gci.org.uk/rates.html>

[4] C&C in UK Climate Act
http://www.gci.org.uk/endorsements_UK_Climate_Act.html

[5] C&C - Right Principle & correcting Wrong Rates projected COP-15.
http://www.gci.org.uk/animations/COP_15_C&C.swf

[6] Chinese Government accepted the C&C Principle July 2009 with 'their' rates
"Since the principle of 'contraction and convergence' was first proposed by the Global Commons Institute in 2000, it has been widely embraced by some industrialised countries. Under contraction and convergence, each country will start out with emission entitlements equal to its current real emissions levels, and then, over time, converge to equal its per capita entitlements, while the overall global budget contracts to accommodate the emissions reduction objective. The convergence principle should be applied immediately rather than later as the 'converged point' in the future. 'Real emissions' is a different concept to 'emissions entitlement'. A country's high/low per capita real emissions cannot justify its high/low emission entitlements. In the process of convergence, the rights and interests of country B are really infringed by country A. In the NEA-based solution, the concept of convergence can still be incorporated, but it now merely means 'convergence of real emissions' rather than 'convergence of emission entitlements'. Each country's gaps between its emission entitlements and real emissions need to be balanced by the traded emissions quotas."

Greenhouse gas emissions reduction - a theoretical framework & global solution
 Development Research Centre of the State Council People's Republic of China 2009
http://www.gci.org.uk/Documents/China_Research.pdf

[7] Seeking a negotiation to 'correct' rates of C&C - see opposite and here: -
<http://www.candcfoundation.com/pages/whatis.html>

[8] Diverse and general endorsements of C&C after 20 years,
<http://www.gci.org.uk/endorsements.html>

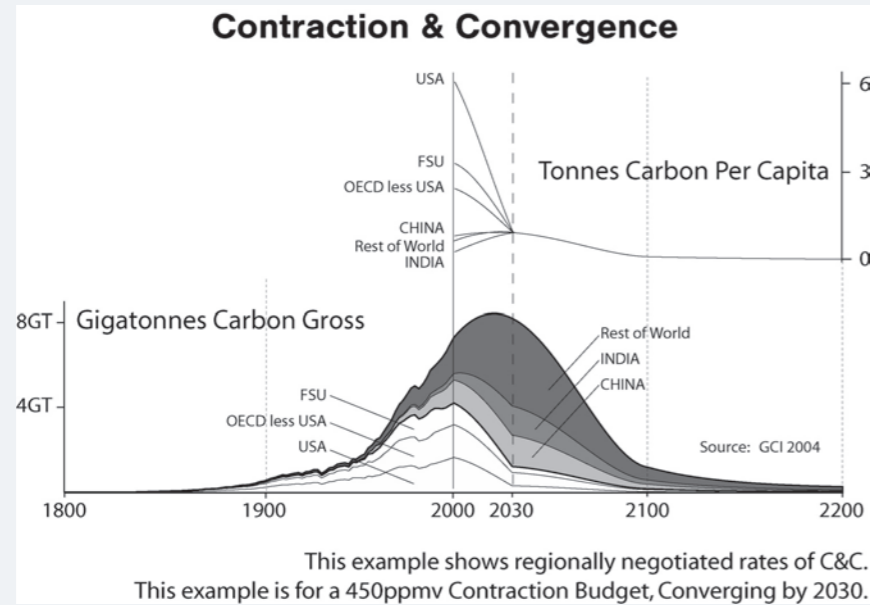
UN Bodies	UK Climate Act	Institutions	Medics	Religious
Population	Ethics	Equity	Sustainability	Sceptics
Campaigns	Individuals	Academia	Capital/Social	Law
Economics	Politics	Justice	Publications	All

<http://www.gci.org.uk/news.html>

[9] C&C Foundation: -
<http://www.candcfoundation.com/index.html>

[10] C&C Foundation: -
http://www.gci.org.uk/Documents/C&C_Fndtn.pdf

GCI BRIEFING: "CONTRACTION & CONVERGENCE"



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]

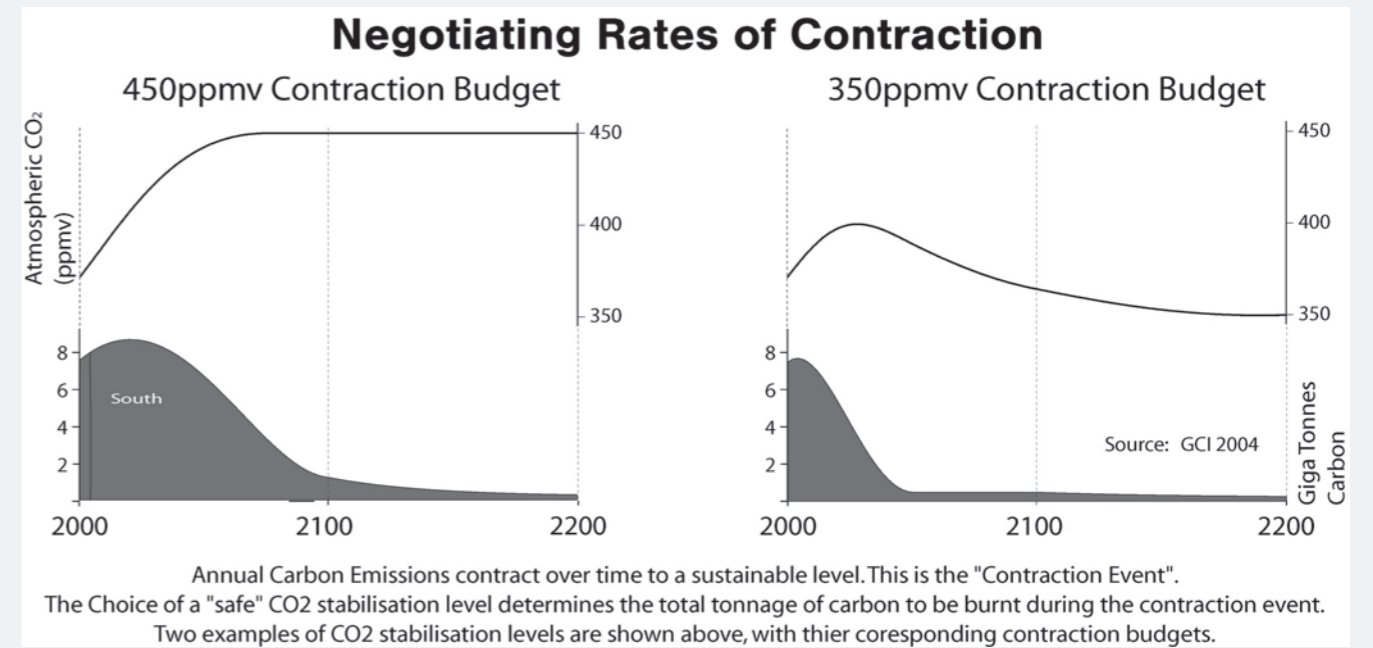
Negotiations for the Kyoto Protocol to the UNFCCC ran from 1995 until 1997. In December 1997 and shortly before they withdrew from these negotiations, the USA stated, "C&C contains elements for the next agreement that we may ultimately all seek to engage in." [5]

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."

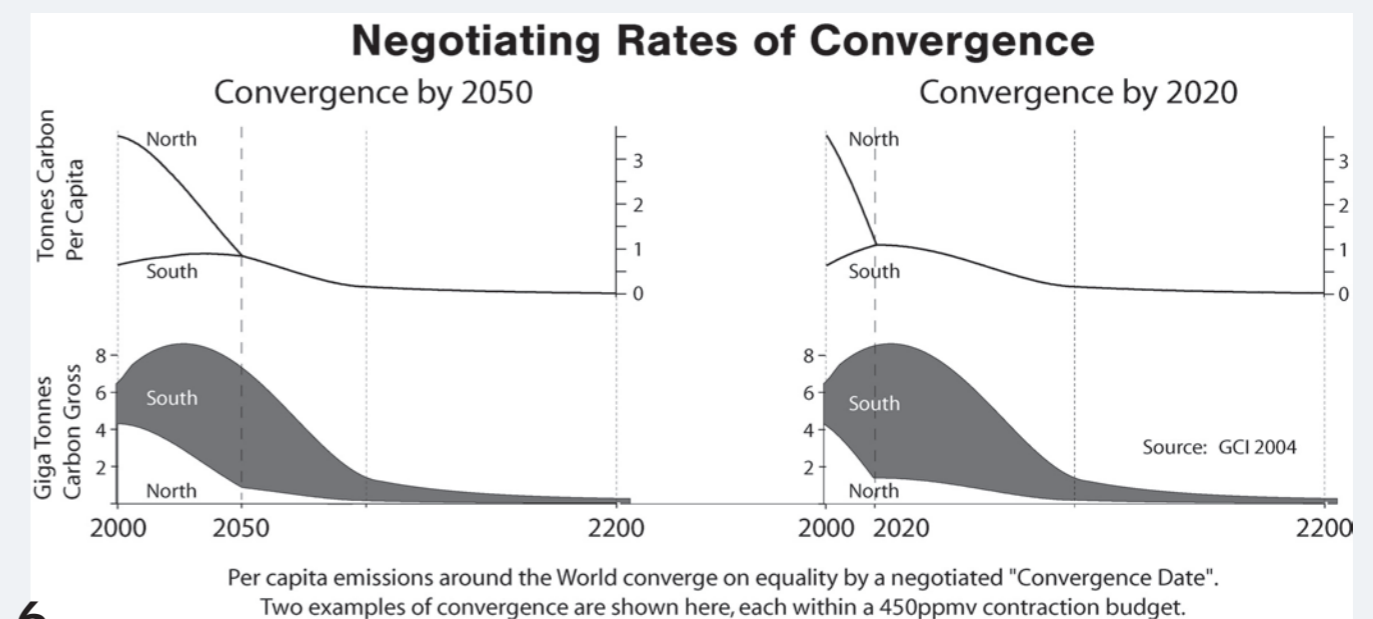
This statement follows and is available in thirteen languages. [10] It has been adopted by the House of Commons Environmental Audit Committee and in part in the UN's forthcoming "Millennium Assessment." In 2005, the UK Government will host the next G-8 summit. The Government has already committed this 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/Nairobi3b.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



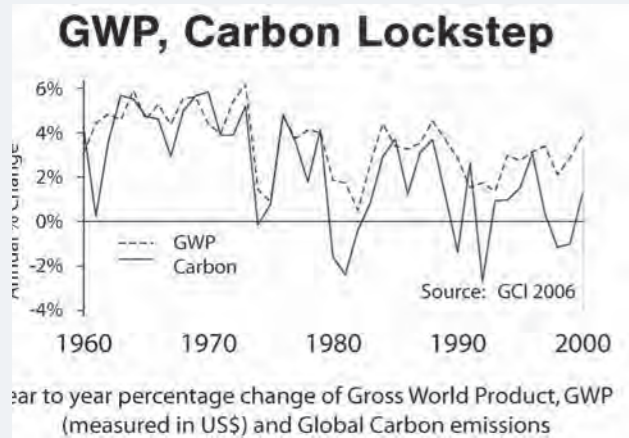
1. "Contraction and Convergence" (C&C) is the science-based, global climate-policy framework, proposed to the United Nations since 1990 by the Global Commons Institute (GCI). [1,2,3,4]
2. The objective of safe and stable greenhouse gas concentrations in the atmosphere and the principles of precaution 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).



* Scientific understanding of the relationship between an emissions-free economy and concentrations develops, so rates of C&C can evolve under periodic revision.

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.

GHG emissions have so far been closely correlated with economic performance (See Image Four Page Three). To date, this growth of economies and emissions has been mostly in the industrialised countries, creating recently a global pattern of increasingly uneconomic expansion and divergence [E&D], environmental imbalance and international insecurity (Image 4 p 3).



The C&C answer to this is full-term and constitutional, rather than short-term and stochastic. It addresses inertial argument about 'historic responsibilities' or rising concentrations recognising this as a development opportunity cost to newly industrialising countries. C&C enables an international pre-distribution of these tradable and therefore valuable future entitlements to emit GHGs to result from a rate of convergence that is deliberately accelerated relative to the global rate of contraction agreed (Image 3 p 2).

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 meets the requirements of the Byrd Hagel Resolution of the US Senate of that year [12] the European Parliament passed a C&C resolution in 1998 [13] the UK Parliament has reported on C&C [14, 15, 16].

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](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/UNFCCC&C_A_Brief_History_to1998.pdf [pp 27 - 32]
- [14] http://www.gci.org.uk/EAC/Climate_C&C_Report.pdf
- [15] <http://www.gci.org.uk/links/detail.pdf>
- [16] http://www.gci.org.uk/briefings/Consensus_Report.pdf

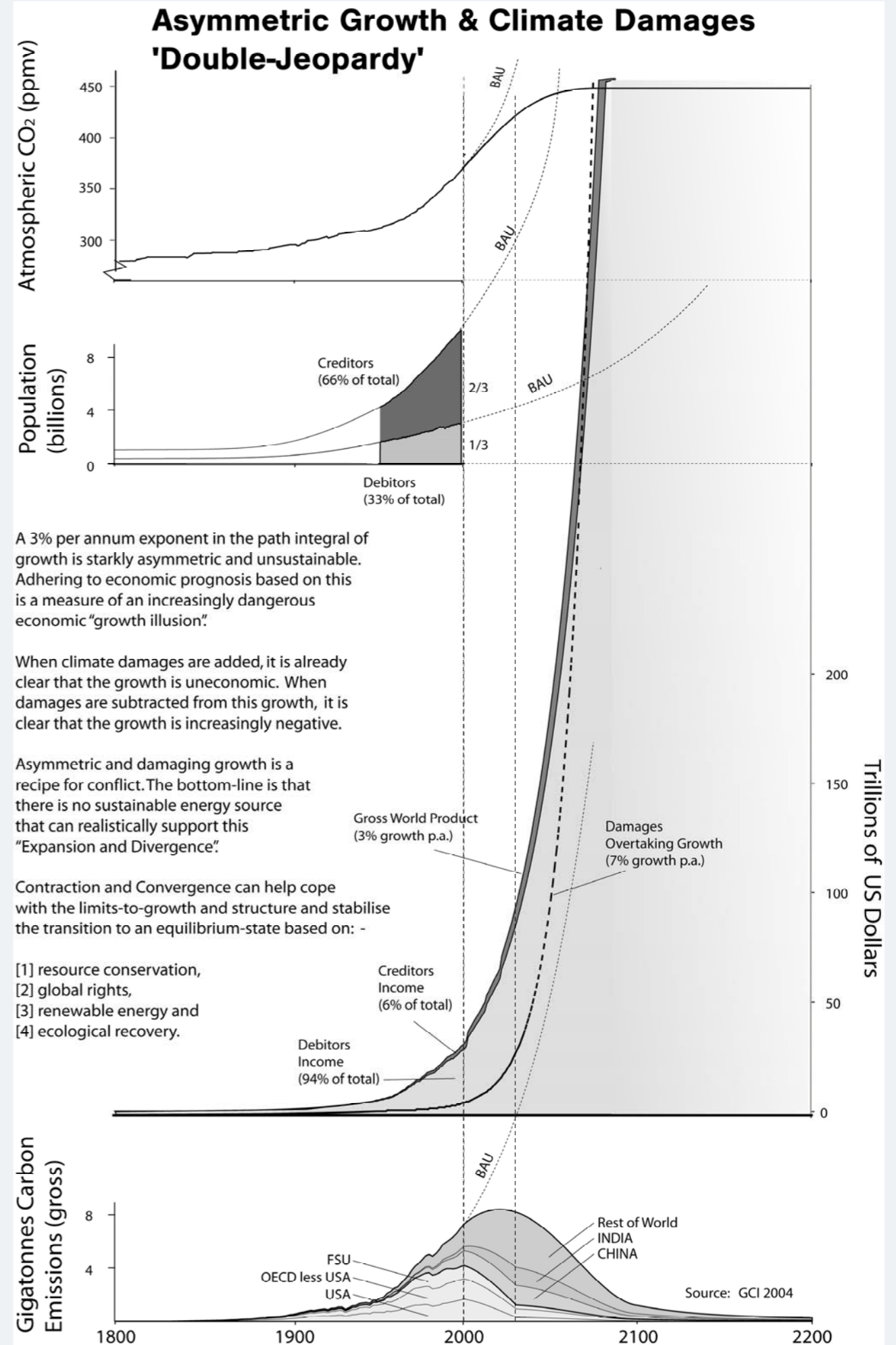
The charts on page four are stacked one above the other on the same horizontal time axis [1800 - 2200]. This helps to compare some of what is known about existing rates of system change with an underlying assumption in favour of a C&C arrangement being put in place.

A new feature shown is the rate of economic damages from increasingly 'unnatural disasters' (measured as 'uninsured economic losses' by Munich Re) now rising at 7% per annum, twice the rate of global growth. Another is the devastating and worsening economic asymmetry of "Expansion and Divergence" (E&D). This shows a persistent pattern of increasingly dysfunctional economic growth. One third of population have 94% of global purchasing power and cause 90% of GHG pollution. [We call these 'debtors']. 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.



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.