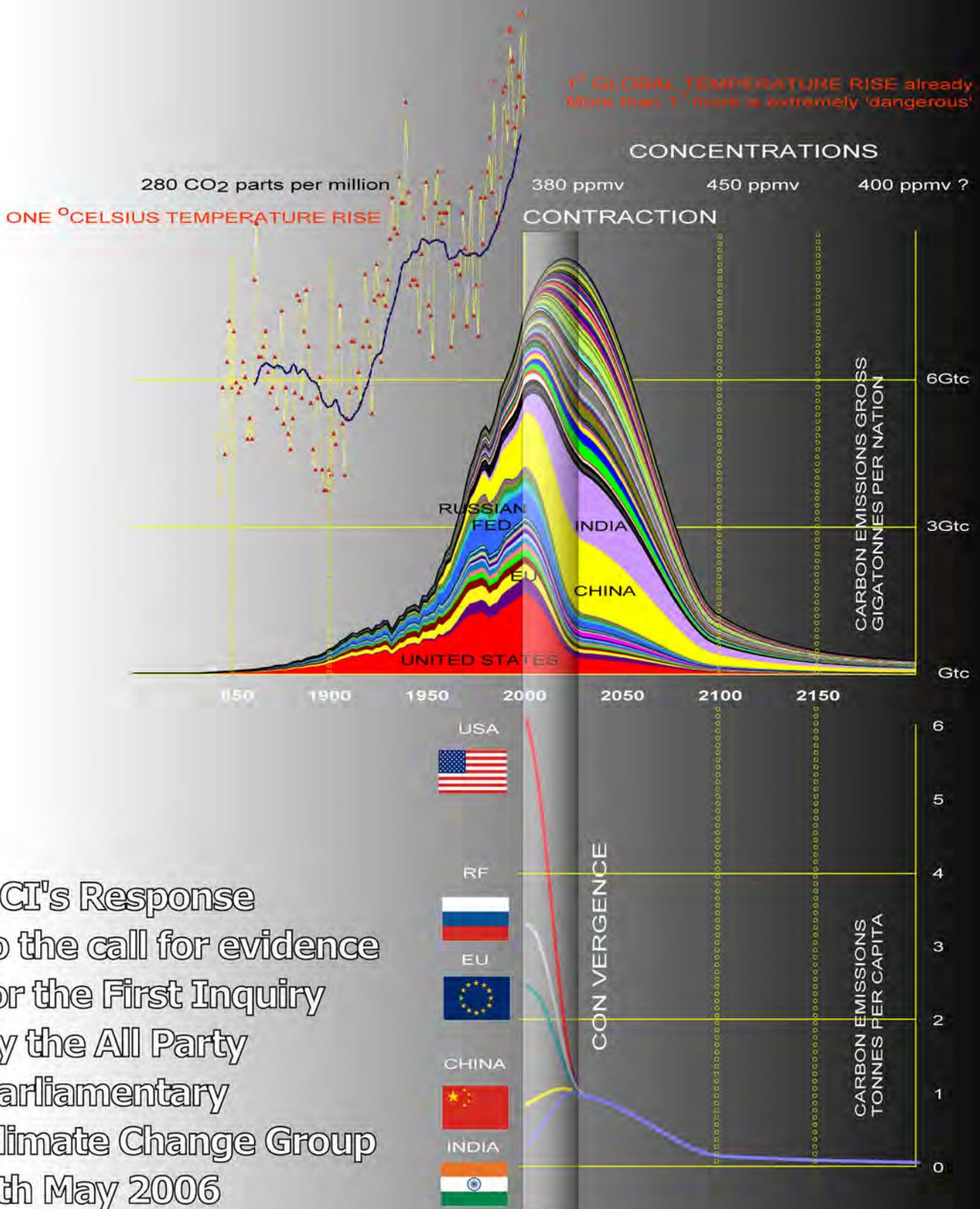


"Is a cross-party consensus on climate change possible or desirable?"



GCI's Response
to the call for evidence
for the First Inquiry
by the All Party
Parliamentary
Climate Change Group
8th May 2006

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 "

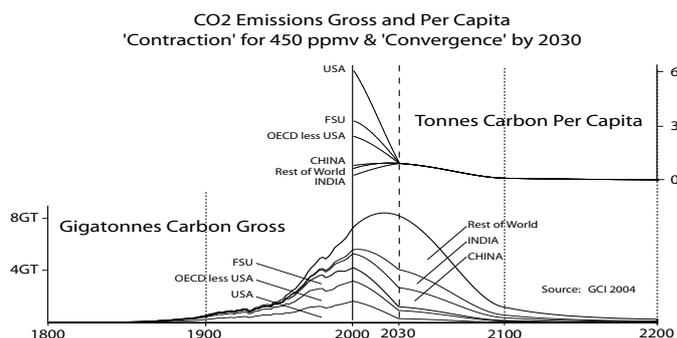
CHAIRMAN [Raul Estrada Oyuela]:

"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 "

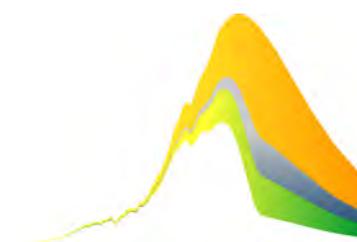


UNITED STATES OF AMERICA [Jonathon Pershing]:

" 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 "

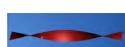
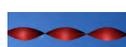


For details of widespread support for C&C, see: -
http://www.gci.org.uk/briefings/EAC_document_3.pdf
http://www.gci.org.uk/events/City_of_London_Award_Sheet_03.pdf
http://www.gci.org.uk/Archive/Mega_Doc_1989_2004.pdf



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In early 2006 the UK House of Commons All Party Parliamentary Climate Change Group announced its First Inquiry and called for evidence on the theme: - *"Is a cross-party consensus on climate change possible – or desirable?"*

The answer is, *"yes, perhaps . . . it depends on what the consensus is based."*

GCI RESPONSE

This document from GCI is a response to that call for evidence. It responds to the questions framed under that heading but after it first responds to the comments in the enquiry's introduction.

Core Message to Enquiry - C&C consensus now

Humanity is moving rapidly into conditions of dangerous rates of climate change. Realising this is imperative. Only concerted international action - principally on emissions control with C&C - will prevent this going from urgently serious to critical.

In April 2005 the House of Commons Environmental Audit Committee Report advise by many other major institutions, emphasized this: - there is an immediate, urgent and absolute need for the UK parliament to come to a consensus on future emissions management in terms of a full-term Contraction and Convergence [C&C] framework and to win the case for this and delivering it internationally.

<http://www.publications.parliament.uk/pa/cm200405/cmselect/cmenvaud/105/105.pdf>

- a globally shared atmospheric greenhouse gas concentration target ideally not higher than 450 parts per million [ppmv] CO₂ equivalent, and within this . . .
- a formal and rapid transition to globally equal per capita shares of the future emissions entitlements that are consistent with this limit.

This is C&C. It is the simplest, most robust and widely supported basis for international and intranational consensus-building; see the Annexes to this document. The briefing defining C&C is here: - <http://www.gci.org.uk/briefings/ICE.pdf>

On consensus-building, it is significant that institutions like BP now say, *"C&C helps greatly, as it is inclusive and makes clear what needs to be achieved. Without such a shared model - there will not be the necessary relationships that create the new and exciting possibilities, and the trust for shared action."*

On 'actualism' the executive of the UN Climate Convention says, *"Contraction & Convergence is inevitably required to achieve the objective of the Convention."*

On 'alternatives', the Archbishop of Canterbury says, *"C&C appears utopian only if we refuse to contemplate the alternatives honestly."*

A consensus with this refusal might linger. So far, only five of seven UK political parties formally support C&C. It is possible, but it is not desirable, that an all-party consensus forms around ideas less robust and inclusive than C&C because of this.

The existing C&C consensus consists of the Liberal Democrats, Scottish Nationalists, Welsh Nationalists, Greens and Respect. As many of their own MPs support C&C, the Labour Party and the Conservative Party have an opportunity to conjoin with this.

If, after efforts to this end, all-party support for C&C cannot be achieved at this time, these parties should explain their reasons for this. They should present their alternatives and validate why these are better means of defining the basis of effective international policy.

Whether they are able and willing to do this or not, all Members of the House should then be prepared to take a free vote of confidence on the issue. The common threat we, but especially our descendants, face without drastic action to prevent dangerous rates of climate change taking hold creates costs that are simply incalculable.

Context - Responding to General Points made by Enquiry

In 1990, GCI began a campaign for Contraction and Convergence to reverse the climate death-trap of Expansion and Divergence or the 'Economics of Genocide'.

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

In 1995 the IPCC published our interim findings - "*The Unequal Use of the Global Commons*" - <http://www.gci.org.uk/articles/Nairobi3b.pdf> - and in that year the UK Independent and Indian broadsheet media backed our findings: -

"The calculations the governments are being asked to endorse are profoundly unreliable and could provide an excuse for them to do nothing. By placing such a low value on the lives of most of the world's people they seem to endorse the economics of genocide".

The shadow of genocide darkens the present enquiry. In 2006 the UK Government's Chief Scientist, Sir David King, did indeed say that climate change is the greatest threat to humanity - '*greater even than terrorism*'. Given what we already know about the potential for climate change to bring catastrophic outcomes, Dr. King's remark is justifiably emotive, but is it accurate? In GCI's judgement it *under-rates* the threat. Dr. King - albeit inadvertently - while at best opaque on the underlying causes of danger, is fatalistic on the prognosis. He says 'threat' but projects 'certainty'.

In 2005 the Prime Minister convened a conference at the Exeter Hadley Centre on Preventing Dangerous Rates of Climate Change. The outcome substantially defined that 400 parts per million [ppmv] for atmospheric CO₂ concentration was near the upper end of safety on this indicator. Since then however, Dr. King has said - more as 'inevitability' than as a 'threat' - that atmospheric CO₂ concentrations will rise to twice present levels [to over 550 ppmv over the next fifty years] with an attendant temperature rise of 2 degrees. It is of profound concern that a subtle - if unintentional - 'endorsement' of this can be inferred from the element of certainty in his remarks.

This is a threat drastically *more* serious than terrorism. The difference in weight of carbon between 300 and 550 ppmv is around 350 billion tonnes of fossil carbon being dug up and burned as fuel in future in the name of returns to growth and development. The warming impact of this rise in ppmv is colossal. Moreover, in the light of more feedbacks turning sign positive, this weight of emissions probably will turn out to be considerably less against a given rise in concentrations, or ppmv will be proportionately higher. Moreover, the temperature associated with this ppmv rise was recently increased upwards from two to at least three degrees. The extra damage implications are huge but not mentioned. Our development dilemma is ever more acute.

With no examination of its likely causes, terrorism and 'glorifying it' is now deemed a serious crime. Yet emissions from human sources and growth that are the principal cause of dangerous rates of climate change are not. They are still actually valued more highly than the damages they cause. Economic growth is still more highly valued than the growth of damages for the same period as the base value for damages is still in billions of dollars per annum while the economy is in trillions. This will change.

Trends imply the growth of damages will catch up with the growth of the economy within a generation. As damages are faster than growth, when the damage trend is subtracted from the economic growth trend, economic growth can be read as increasingly net negative over the decades ahead. To make things worse, our economies are debt-based, not asset-based. GDP totals are equalled, in say the UK and the US, by public and private debt. With their large emissions, these economies are already debt-structured into returns to growth and polluting, without paying for climate damage. These debts will be sunk as trivial in comparison with the rising damage and opportunity costs, as climate change and the dispossession, damages and death it causes produce collapse and - unglorified or not - aggravate the lesser crime of terrorism.

Just in 2005/6 drought in Central Africa and Hurricane Katrina's impact on New Orleans are just two of numerous such impacts that are now iteratively apparent in the early damage curve. If the next fifty years with continued emissions take us to Dr. King's 'certainty' of atmospheric CO2 doubling, we will have morphed growth into a killing machine. If human death and infra-structure destruction are a reasonable basis for making such comparisons, climate impacts are already greater than present terrorist impacts. Consequently, Dr. King's remarks are actually misleading as they actually *underplay* the extent of the threat of global havoc from future climate change.

The Chairman of the IPCC Dr. Pachauri has emphasized again recently that, *"the poorest of the poor are most affected as a result of climate change."* Halldor Thorgeirsson, Deputy Executive Secretary of the UN Framework Convention on Climate Change, said *"the economics are not right. The cost of emissions is not carried by the emitter, but by the rest of humanity."*

Chris Mottershead, Distinguished Climate Advisor to BP has just said, *"there are ethical obligations of consuming customers, business and governments for these impacts. The polluter pays principal is not working - what it has morphed to mean is that a polluter pays either another polluter to pollute less, or to pay somebody to offset pollution. What it does not mean is 'compensate' those who are most impacted."*

Colin Challen MP, Chair of the all-party group, in a bluntly forthright editorial in the Independent on the 28th of March, noted that, *"Our economic model is not so different in the cold light of day to that of the Third Reich - which knew it could only expand by grabbing what it needed from its neighbours. Genocide followed. Now there is a case to answer that genocide is once again an apt description of how we are pursuing business as usual, wilfully ignoring the consequences for the poorest people in the world. The DfID submission to the Stern Review on the economics of climate change makes it clear that climate change will do untold damage to the life chances of millions of people."*

On 29th of March the Archbishop of Canterbury underlined this in a broadcast on the BBC saying, *"I think this is something in the long run that Government simply has to brazen out. I mean nobody likes talking about in government, coercion, in this respect - whether it's speed limits or anything else. Nobody, for that matter, likes talking about enforceable international protocols and yet unless there is a real change in attitude, we have to contemplate those very unwelcome possibilities if we want to the global economy not to collapse and millions, billions of people to die."*

Just present climate-change-related impacts include for example this year's repetition of drought and famine in central Africa where according to reports in the media, twelve million people are at risk of death from this cause, this year alone. Present climate-change-related impacts include for example, repetition of record-breaking hurricane impacts on mainland America where hundreds of thousands of people have been killed or displaced. Insurance industry estimates of uninsured losses were recorded in the region 100 billion dollars for Hurricane Katrina's impact on New Orleans alone. Were the one-off mortality of this valued at standard Western life, evaluation of this alone is potentially in the region of tens of billion of dollars for one year. But the fact is that because the people who are dying or at risk of dying are, in terms of income, very poor, the 'dollar-value' of their deaths has little weight in how the benefits of growth are presently compared with the costs of its consequential damages.

These events are part of a now well-established trend of damages. Forty years ago these were characterised as 'natural disasters'. Now they are characterised as *un-natural* 'weather-related disasters'. The trend in data collected for over forty years by the re-insurance industry for 'uninsured economic losses' from such disasters, sees the averaged rate of yearly growth in damages running at 6% per annum, at least double the rate of economic growth for the same period.

Projecting this forward and failing to act radically prevent these damages from occurring - deliberate or not - at the very least defaults to 'the economics of genocide'. The UK Chancellor, Gordon Brown, has now responded to this by saying climate change is "*an ethical issue*", in other words, beyond crude economics of business-as-usual.

Finally, after sixteen years, the campaign against the economics of genocide started by GCI to be replaced by the economics of survival, this defining issue is finding champions at the heart of British politics. The all-party-consensus on climate change needs to be rooted in this and integrated with the consensus for the prevention of dangerous rates of climate change with the full-term policy framework of C&C.

Yet, quoting the enquiry's own words, "*though most political parties accept that climate change is a reality brought about by anthropogenic causes, the issue was barely addressed in the 2005 general election, a uniform absence of debate which belied the party political differences in approach that exist.*"

Faced with this, the UK House of Commons All Party Parliamentary Climate Change Group is correct to convene the enquiry; it is correct to say that the issue, "*calls for a party political consensus on climate change [to] reflect the view that this subject is 'too big' for partisan dispute;*" it is correct to note that, "*whilst party differences continue the public will be sent mixed or conflicting signals about how they should react.*"

However, the enquiry should beware of making a false dichotomy when citing, "*another view, that unless there is a dynamic political debate, ineffective policies may be allowed to go unchallenged, and that complacency may replace a sense of urgency.*"

Of course there will be, and should be, vigorous debate about the detail of the response. However, these are primarily tactical discussions about short-range matters. These must not be permitted to undermine the necessary strategic commitment to the global framework, numerically defined as a rational rights-based unity governing future rights to emit consistent with stabilising the atmospheric concentrations of greenhouses gases at a value that is also safe. Tactical differences must not deflect the creation of a full-term strategic commitment to the C&C Framework.

If necessary, normal party divisions should be over-ridden by a free vote in parliament on whether or not to make this unified commitment domestically and as the basis of the UK's international advocacy.

This inquiry should ask political parties to work more closely together on this approach to climate change, and to identify and explain the possible obstructions to such a consensus approach presenting validations of any objections.

STOP PRESS - the EDGE the Building Industry's ginger group of past presidents has just voted to get the industry's institutions to make C&C core to their concerns: - http://www.gci.org.uk/articles/EDGE_Report.pdf

The enquiry asked the following questions in **bold** - GCI responses follow each one.

1 Areas of agreement/disagreement

A. What are current points of consensus on climate change?

The current consensus on 'perception of the problem' between and across the parties, appears now to be unanimous: - it is that we do have a real problem with climate change, that is vast [global] and - considering the potential for increasingly catastrophic impacts and outcomes - much greater than 'terrorism' as discussed.

B. In which areas of policy would a consensus require further convergence by the parties?

'Local' in this analysis is anything less than global – i.e. sub-global, or parts rather than the whole.

Whatever the detail on degrees of consensus on **local** 'policy', the current consensus between and across the parties on what to about this **globally** seems to be gradually, if not yet to be unanimously, in favour of a global strategy based on the need for a ghg concentration-target based framework of "Contraction and Convergence" (C&C).

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

So far, 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>

It is reasonable to assume therefore that an all-party consensus will exist if and when the Labour and Conservative parties accept and conjoin with this position.

This will be operationally so when all - or a majority of - parties agree to act together in the light of this unity to develop the application of the C&C framework in the national polity and international process.

C. What C&C consensus exists in Europe and Beyond?

The extended network of support for the C&C framework is now very considerable indeed - see Annexes to this document. This reflects a fact that in a generic sense C&C is fairly 'obvious'.

However, 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: -

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

<http://www.gci.org.uk/Endorsements/UNEPFI5f.pdf>

To cure this very randomness, C&C formally means the structured meaning 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]

D. Is a consensus inevitable?

The human condition makes 'incomplete-consensus' inevitable. However, it appears that any consensus that speaks directly to the achievement of the UNFCCC objective, without expressly refuting the formal view already expressed by that executive of that body - "*Contraction and Convergence is inevitably required to achieve the objective of the convention*" - inevitably favours C&C.

This is subject to rider that some people seeking to preserve 'consensus-in-diversity', may be pursuing points of detail, locality, variety and perhaps even short-term dissimulation, for purposes of making qualitative differential distinctions. This does invalidate the authoritative, first-order requirement for the rational science-based unity of a full-term emissions contraction event to stabilise rising ghg concentrations and second-order binary convergence as the derivative.

This effectively says that achieving the objective of the UNFCCC is impossible without C&C. Kyoto demonstrates that effective consensus is not happening.

2 Mechanisms

A. What is the best basis for arriving at a consensus?

'Best' is a numerate, candid and open appraisal of the dilemma and the scale of the dilemma we are all in. The test of openness is willingness to demonstrate coherent quantitative grounds for repudiating these recorded data facts: -

- Rates of global warming are already accelerating into what are self-evidently dangerous conditions; 'surprises', such as further feedbacks to climate system, will be away from the equilibrium in which civilization thus far has developed; contingent scenario planning is required which Kyoto entirely lacks;
- Damages from [un]-natural weather-related disasters have been on average at 6% per annum and twice the average growth rate for the last forty years; this occurs within what are deeply asymmetric global economic conditions vide "expansion and divergence" briefing <http://www.gci.org.uk/briefings/ICE.pdf>
- We are collectively causing these conditions of 'double-jeopardy' - damages and asymmetric growth - conspicuously faster than acting to correct them;
- This trend is now significant aggravated by the increased fraction of greenhouse gas (GHG) emissions being retained in the atmosphere annually; consequently the problem is accelerating, climate is changing faster than predicted and that doing "enough, soon enough" to avoid dangerous rates of climate change becomes harder and harder to achieve proportional to delay;
- Action on the side of haste, rather than delay as with Kyoto, is the only realistic approach; failure to do "enough, soon enough" ends in complete failure and makes us all progressively complicit in this failure unless we choose to organise to act against it; but even committed preventive actions by individuals, organisations and individual nations are hostage to the exclusion of developing countries in Kyoto's lack of any global framework; there has to be collectively accounted action as with C&C;
- The push for growth and the evolutionist model of development embedded in Kyoto's phased illusions of business-as-usual, trades mere mega-tonnes of allegedly avoided emissions amongst a few, against the rising giga-tonnes of their continuing and accelerating atmospheric accumulation from the many; no trend analysis of this can regard Kyoto's incrementalism - however 'heroic' - as better than hopelessly inadequate to the task in hand;
- The full-term reality-check embedded in C&C defines the goal rationally, yet defenders of the incrementalism and incompleteness in Kyoto claim to outrank this, asserting that progress to the goal is merely aspirational;
- Defenders of this falsely claim - in the name of equity and without presenting any evidence - to 'resolve historic responsibilities' for causing climate change [past emissions accumulated], tailor-make future climate policies for all countries individual needs for growth, deliver climate security, development and justice without any overall measure of adequacy [being governed by a concentration target] and cause overall policy to add up to being, "enough, soon enough" to avoid dangerous rates of climate change;
- Criticism sometimes led against C&C by such actors is not valid. It is made from the assertion of an innumerate, evolutionist perspective that trades a patchwork of arguments between people on an open-ended global emissions account that is drawn against without a future limit on concentrations or time;

- The evolutionist appraisal of Kyoto progressively defaults to fatalism for or against Kyoto and continuing with this myopic approach and asserting it as the only permitted approach, turns Darwin's dictum on its head and demonstrates that we - humanity - are collectively unfit to survive and won't.
- The need is for that with which we began, the objective and principles of the UNFCCC and the intelligent design of C&C, global rationing and equity within a cap for globality with security, and it is this and the economics of this that is inevitably required to achieve the objective of the UNFCCC.

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

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

Meaningful consensus is impossible without unreserved candour about this.

Disputes should be arbitrated in front of people who are already the victims of climate change e.g. Kenya - see Kenya Government intervention at COP-11

B. How should parties retain the involvement of their members and the public in policy development?

As per normal, subject to the authority of candour over points in 2A.

C. Should there be an electoral pact, or a joint manifesto statement?

To the extent possible, subject to the authority of candour as above

D. Should party leaders appear on the same platform?

To the extent possible, subject to the authority of candour as above.

E. How might disputes be resolved without political recrimination or 'point scoring'?

Amnesty. Candour and truth as above is meaningless without reconciliation and a global plan for reconciliation i.e. "Contraction and Convergence" (C&C).

To survive we have got to split the differences and unite for survival.

F. Could convergence be aided by the parties drawing upon the existing, and any new, scientific research on climate change?

Subject to the authority of candour in point 2A and the realisation that we already know enough to act resolutely.

G. Are there areas of disagreement which cannot be easily resolved through such research?

Monetary values, especially on the 'value of life'. Common sense is preferred.

3 Outcomes

A. Would a consensus approach result in policies with really significant (or maximum) impact, or would it lead to the adoption of the lowest common denominator and/or constrain vibrant political debate?

These facts pre-exist the consensus sought. Consensus that pre-exists these facts is in a sense irrelevant. Clearly, if the price of getting consensus with everybody on board, is based on these facts – Expansion and Divergence, damages and responding to them with “Contraction and Convergence” (C&C) - it is a price well worth paying. At the same time, if the consensus occurs without materialising around the acceptance of these facts, either an incomplete consensus or a ‘numerically-complete’ but vaguer consensus may emerge.

Consensus for its own sake that fails to recognize the facts of Expansion and Divergence and affirm the need for the logic of the C&C response, will be a consensus that exists independent of these facts and this logic, and will be ephemeral and carry a price of false-unity that is not worth paying.

B. Should the electorate be left with or without a choice of approaches?

This is a false dichotomy. As un-prevented dangerous rates of climate change take hold, they destroy any meaningful remaining potential for choice.

C. Should consensus cover policy on adapting to climate change as well as mitigating it?

This falsely assumes choice-parity between adaptation to and mitigation of climate change. Prevention is the priority otherwise choice is meaningless [above] and within this [prevention] adaptation and versatile adaptations – some of which are also classifiable as ‘mitigations’ [windmills] - are a necessity.

D. If there were a cross-party consensus, would it imply collective responsibility for parties within and outside government?

Because of unhappy precedents, the obvious fear underlying all this concern with consensus is that some form of ‘totalitarianism’ and totalitarian politics might emerge.

As we all share one indivisible global atmosphere and the threat of raising its concentration of greenhouse gas to dangerous levels is a total threat. The more we collectively fail to prevent this from happening, the greater the probability of there being increasing anarchy with the ultimately totalitarian political response.

To defend choice we have to constrain it. There is nothing new about this. As every musician knows, to play in tune and in time you have to stop playing out of tune and out of time. It is the framework - the rational science-based unity and source of all institutional memory - that makes this possible and beautiful.

If there is one, the outcome is the future. Our children cannot play and prosper there if we do not adopt the framework for its protection now.

Inquiry's Evidence Assessors CVs

Dr. Helen Clayton - has been working since January 2004 as Parliamentary Liaison Team Leader in the Natural Environment Research Council, Swindon, a role which includes a focus on translating science into policy.

She came to NERC from ADAS Consulting Limited, Wolverhampton, where she worked for nearly three years as a Research Scientist in the Soils Group, managing research projects on minimising gaseous nitrogen losses from agricultural systems.

Before that she had completed six years as a Postdoctoral Research Associate working on similar issues: greenhouse-gas emissions from agricultural soils, at the University of Edinburgh, and the effects of air pollutants on plants, at Lancaster University, where she was also an Assistant Lecturer in crop physiology. She gained an Honours degree in Natural Sciences and a PhD in Plant Biochemistry from the University of Cambridge in 1986 and 1990, respectively. For three years from 1997 she combined her scientific and foreign-language skills as an examiner of agricultural technology patent applications at the European Patent Office, Munich. She represents NERC on the Swindon Strategic Partnership Climate Change Action Plan Steering Group.

Professor Nick Pidgeon - joined the School of Psychology at Cardiff University on February 2006. From 1999 to 2006 he held a Chair in Environmental Risk at the School of Environmental Sciences at the University of East Anglia. His research falls broadly into the area of public attitudes to risk and risk communication, with particular applications to science policy decision-making, environmental issues (such as biotechnology, nuclear power and climate change) and industrial safety. A social psychologist by background, he has nevertheless worked extensively within interdisciplinary teams throughout his career, most recently as Director of a major programme on Understanding Risk funded by the Leverhulme Trust (2001-5).

That work included a major evaluation of the GM Nation? UK-wide public debate that occurred in 2003, and major survey work on public acceptance of energy futures. Professor Pidgeon was also a member of the Royal Society / Royal Academy of Engineering nanotechnology study group which reported in July 2004. He has consistently argued that public policy decisions about controversial technologies need to be sensitive to public values if fair and equitable outcomes are to be found. However, this does require robust methods for eliciting such values and for promoting a genuine dialogue between scientists, policy makers and civil society about emerging science and technology issues.

He was first author of the chapter on risk perception and communication in the influential 1992 Royal Society Report on Risk. Co-author (with B. Turner) of the book *Man-Made Disasters*, 2nd Edn 1997, and (with R. Kasperson and P. Slovic) of *The Social Amplification of Risk*, Cambridge, 2003.

Professor Mark Whitby - is a founder and director of the engineering design practice whitbybird ltd. Past president, Institution of Civil Engineers. Graduated from London University in 1972. Then gained experience as a designer and site engineer with consultants and contractors before founding Whitby Bird & Partners in 1983, where he is now a working partner. Other current responsibilities include being director of the Institution of Structural Engineer's Education Trust; governor of the Building Centre Trust and founding member of The Edge. In 1993, he was involved with Channel 4's television programme on Bridging the Future and, in 1995, in BBC2's *Secrets of Lost Empires*.

Whitby also writes a monthly column for the *New Civil Engineer* and was a member of the British canoeing team at the 1968 Mexico Olympics.

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 concentrations are a response 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 million CO₂ 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.

RESTART

NEXT:

NOTES

Contraction

Convergence

Science Update

Technological Carbon Fixing

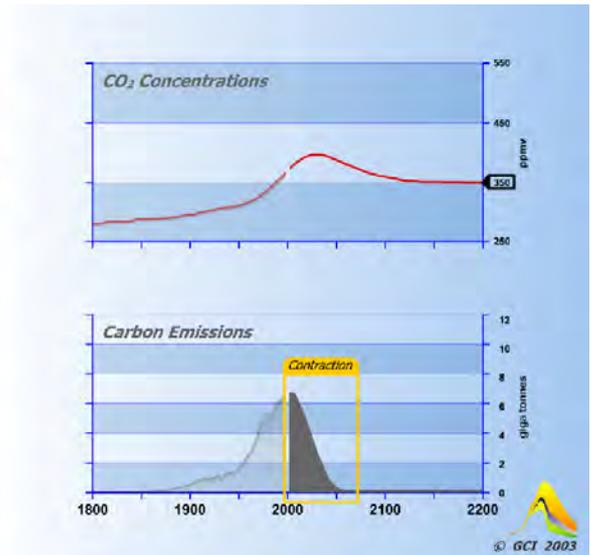
Oil & Gas Depletion

Clean Energy & Efficiencies

Growth & Damages

Implementation

www.gci.org.uk



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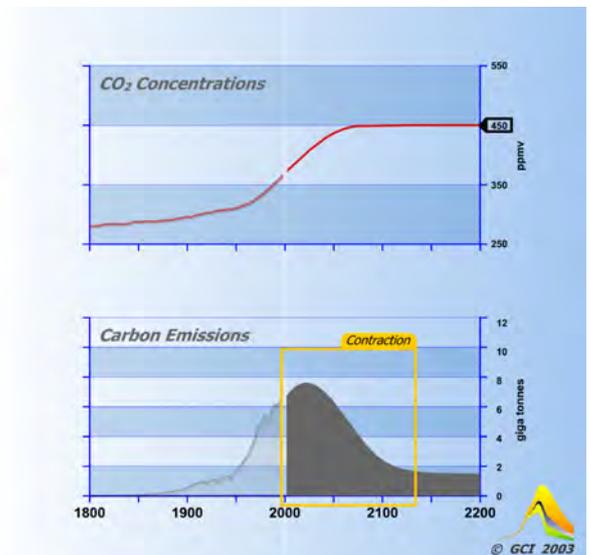
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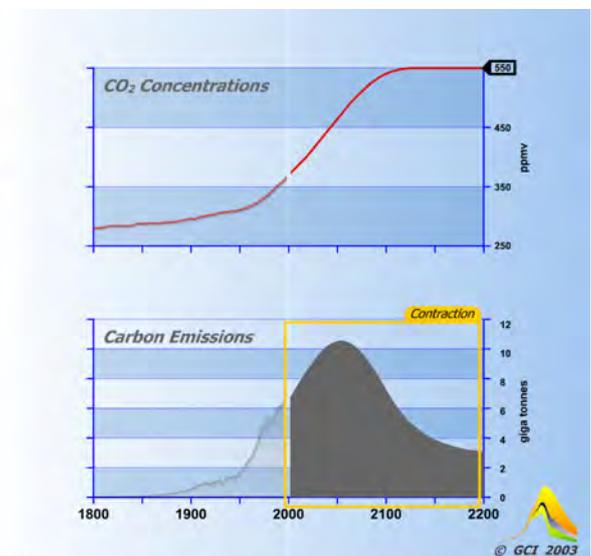
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Contraction and Convergence [C&C]

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 definition 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-distributed as 'tradable emissions entitlements'.

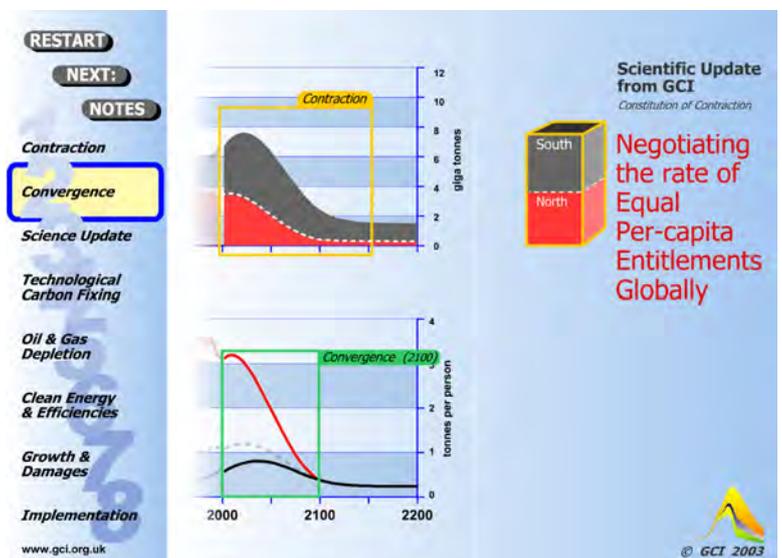
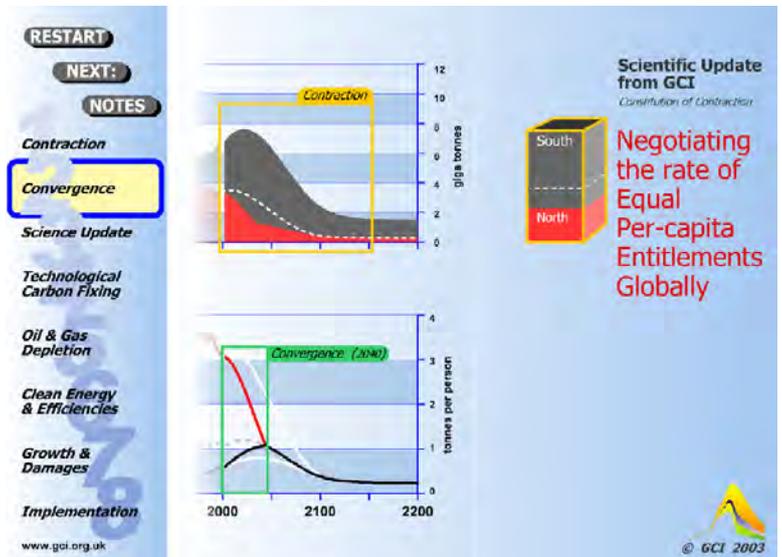
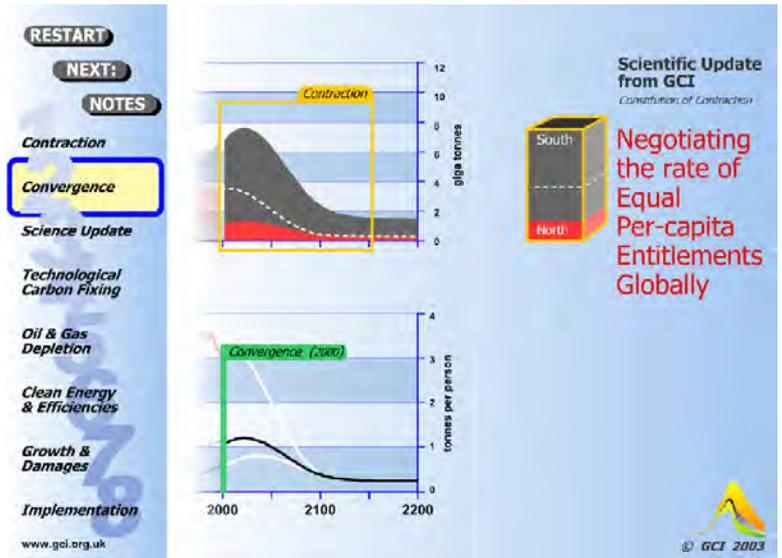
Thus they are commercially valuable and by definition not identical with the actual emissions that will occur.

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 industrialising 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.



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.

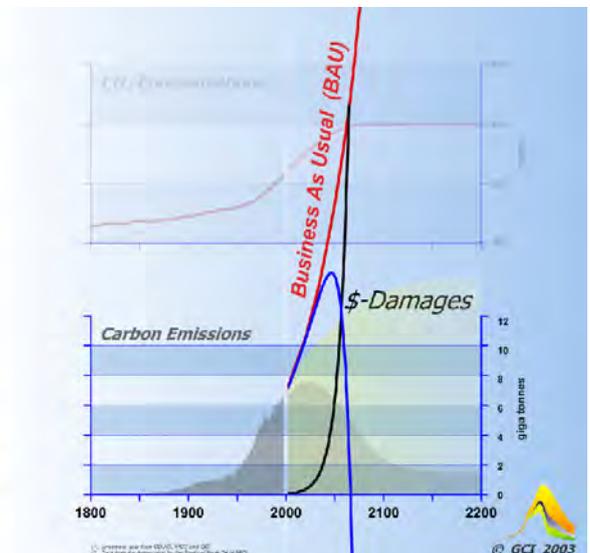
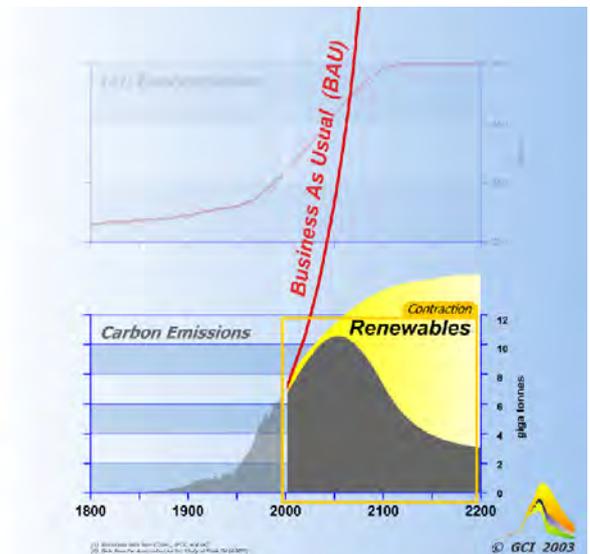
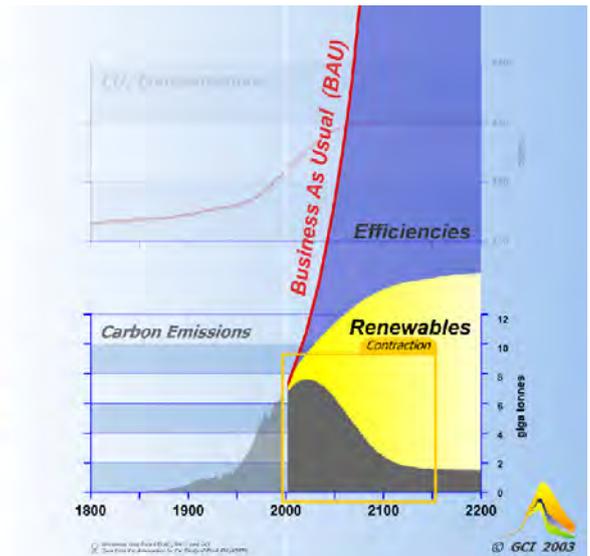
Some economists insist that the economy as a whole will continue to grow at a constant rate due to what they call 'efficiency gains'.

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 persistently 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.



Carbon Cycle and Sequestration

Recent carbon-cycle modelling from the UK Met-Office 'Hadley Centre' suggests 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 rapid emissions contraction budget would be required to achieve a 450 ppmv outcome.

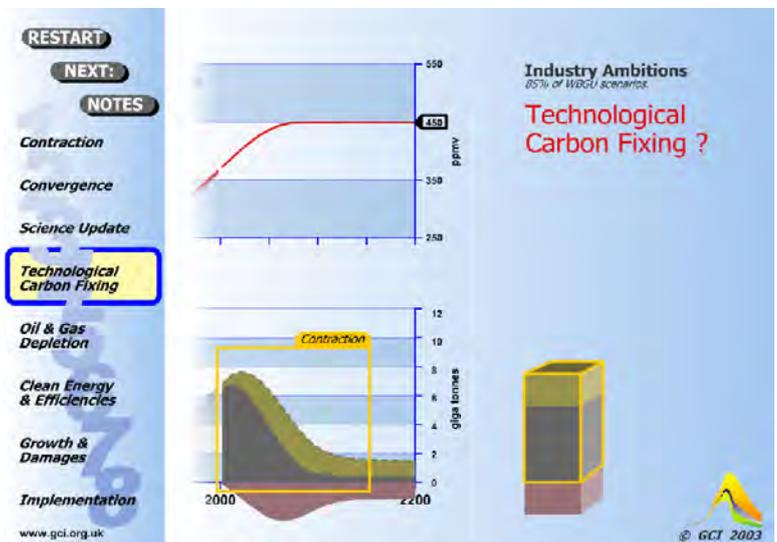
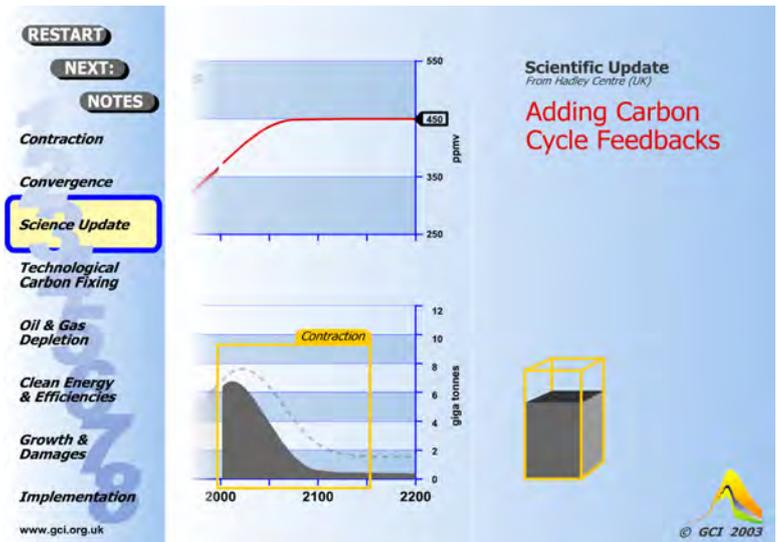
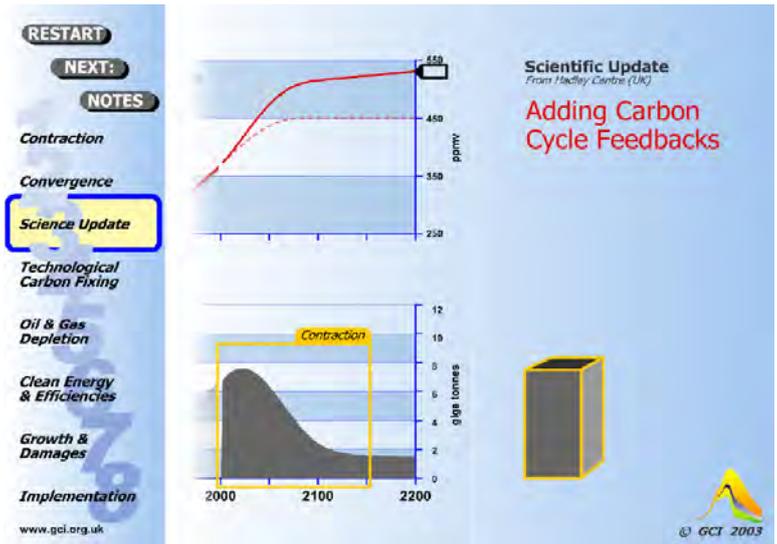
Yet more recent evidence show that these estimates need to be revised downwards yet again.

Soils beginning to release 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 sequestration 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.



Climate Change (Contraction and Convergence) Bill

Contents

- 1 Interpretation
- 2 Duty of Secretary of State
- 3 Implementation of policy
- 4 Report to Parliament
- 5 Regulations
- 6 Expenses
- 7 Short title

Climate Change (Contraction and Convergence) Bill

A Bill 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
- (g) any other gas which may be prescribed in regulations made by the Secretary of State;

"safe and stable level" means a maximum concentration of 450 million parts per volume, or such lower level as may be prescribed in regulations made by the Secretary of State.

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.

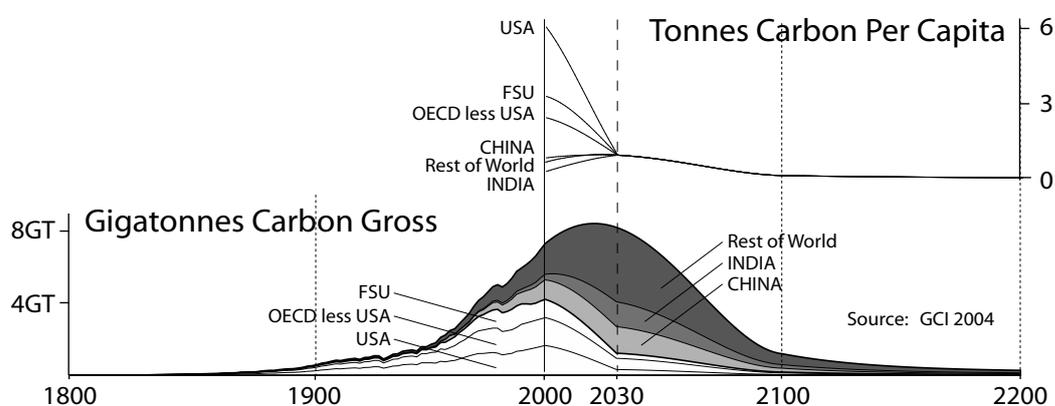
6 Expenses

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.

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]

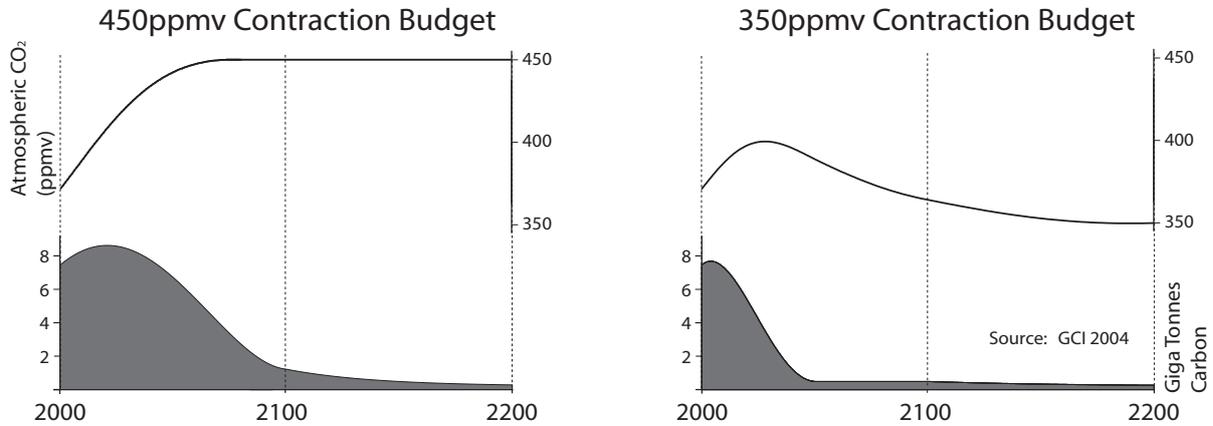
Since then C&C has been widely referenced in the debate about achieving the objective of the UNFCCC. In 2000 C&C was the first recommendation of the UK Royal Commission on Environmental Pollution in its proposals to government. [6] In December 2003 C&C was adopted by the German Government's Advisory 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/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

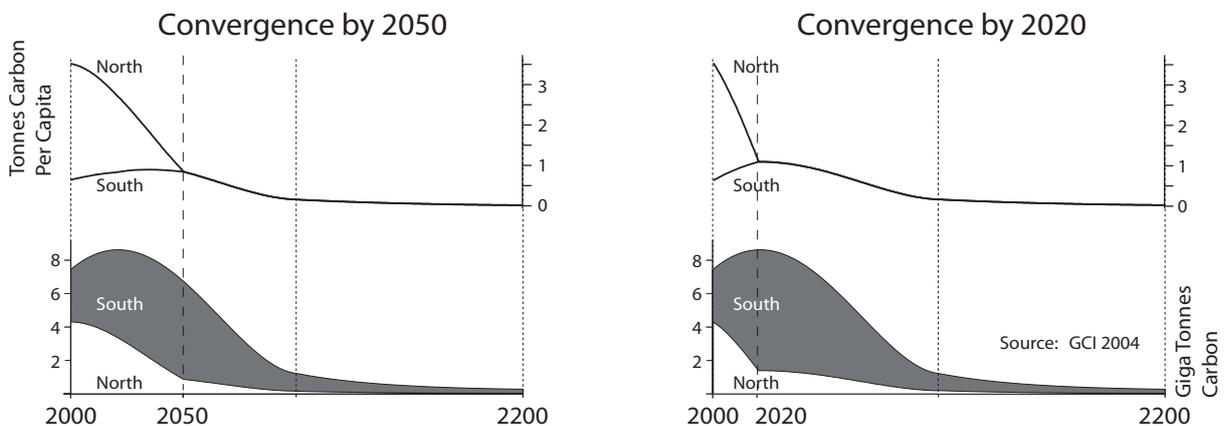
Negotiating Rates of Contraction



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 their corresponding 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

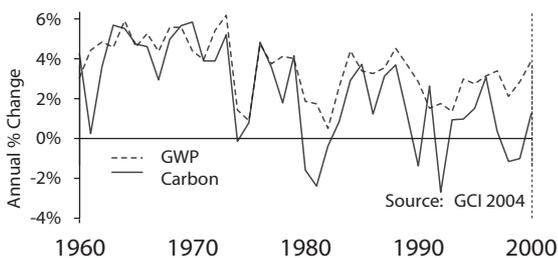


Per capita emissions around the World converge on equality by a negotiated "Convergence Date".
 Two examples of convergence are shown here, each within a 450ppmv contraction budget.

- * 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](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]

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.

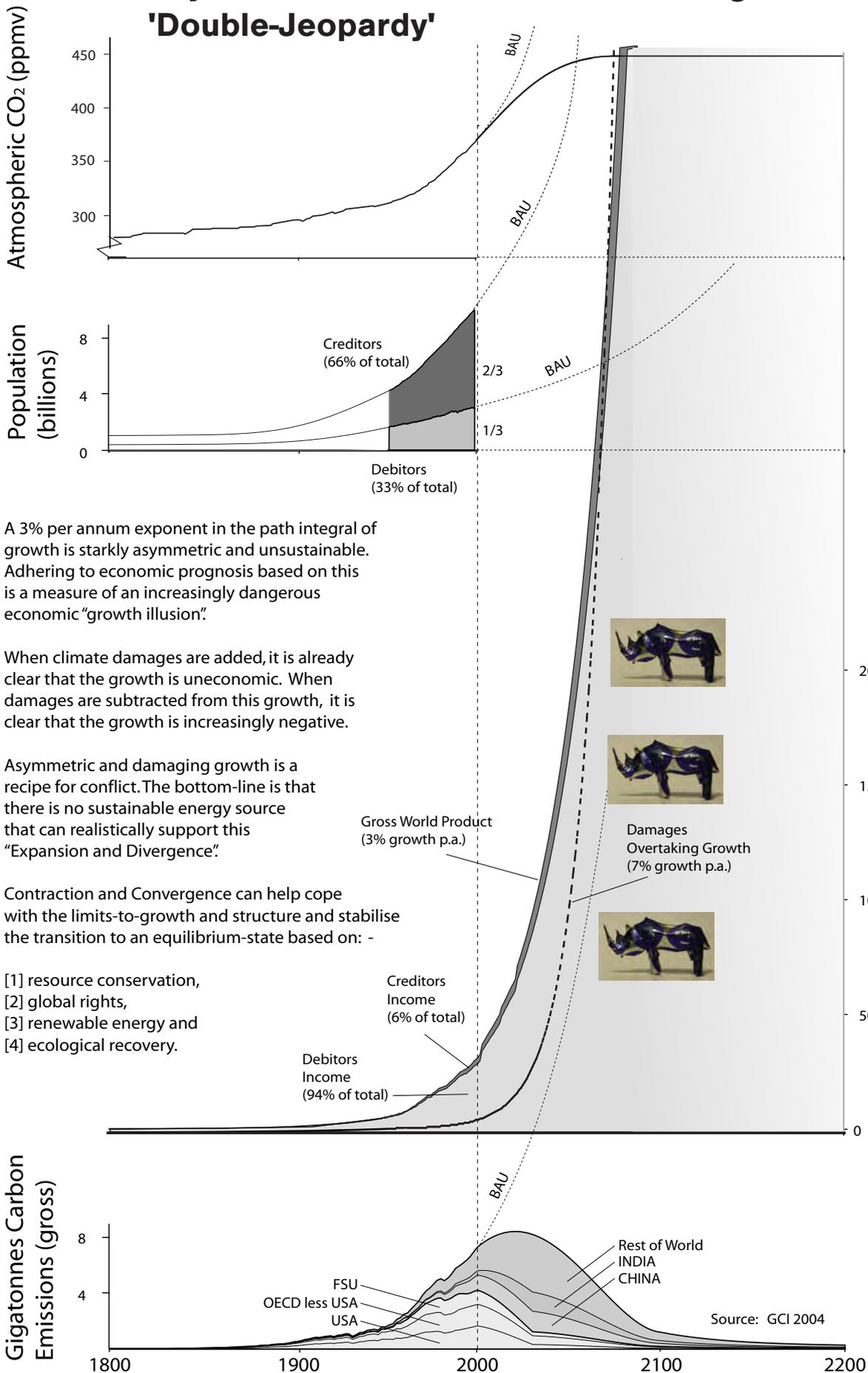
A new feature shown is the rate of economic damages from increasingly 'unnatural disasters' (measured as 'uninsured economic losses' by Munich Re) now rising at 7% per annum, twice the rate of global growth. Another is the devastating and worsening economic asymmetry of "Expansion and Divergence" (E&D).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

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.

Contraction &

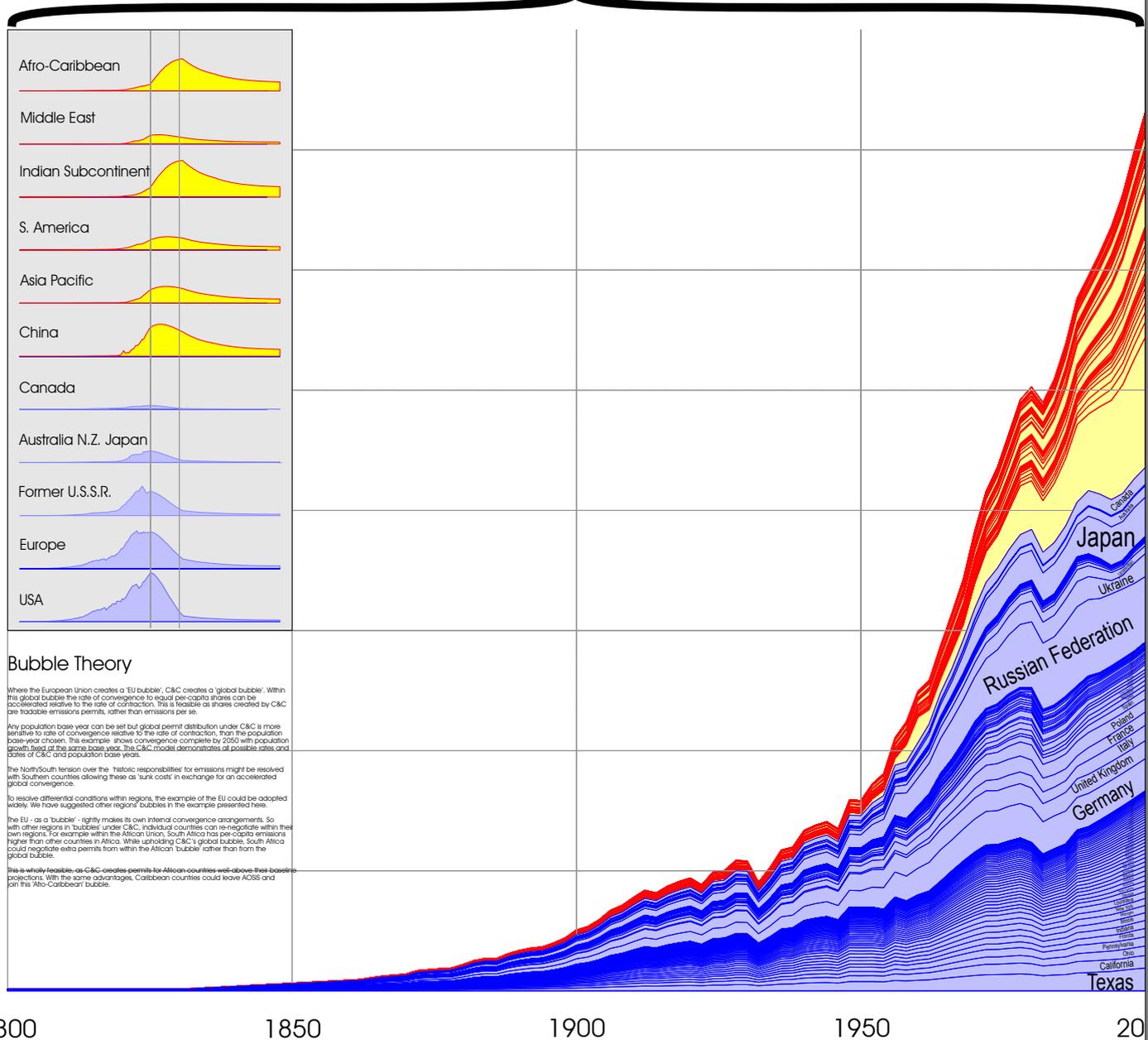
The Objective - stabilise atmospheric ghg concentrations

C&C is based on a global ghg emissions 'contraction' budget calculated from a safe and stable (revisable) ghg concentration target. The example shown is for CO₂ contraction complete by 2100 to give 450 ppmv, as modeled in IPCC Wg1.

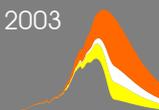
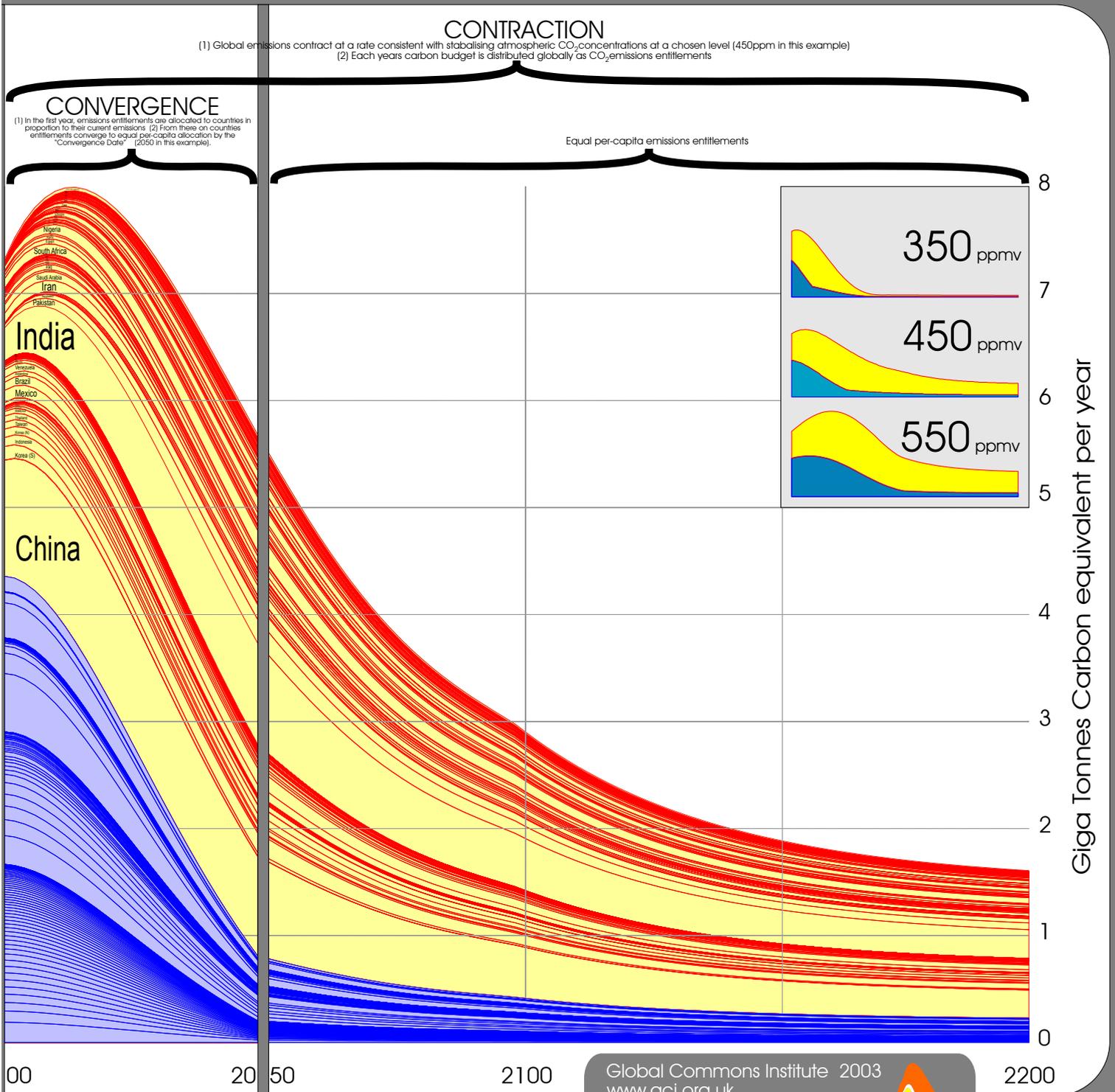
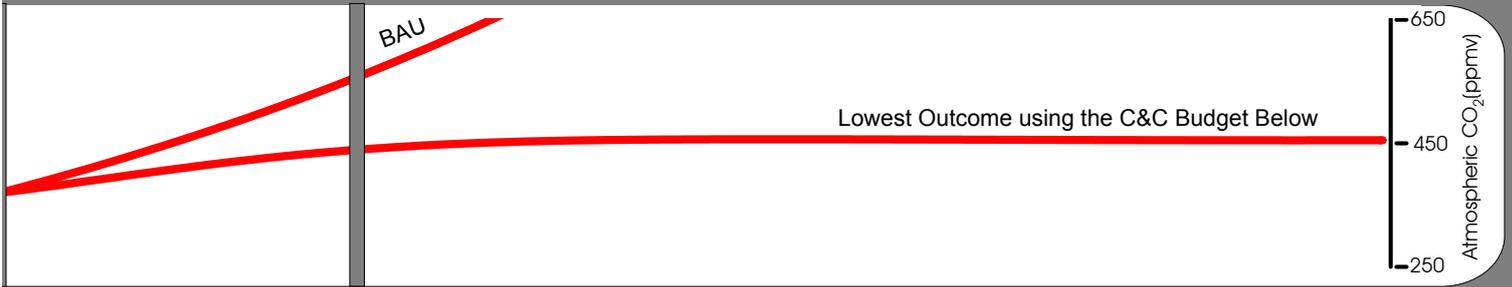
The Framework - contraction & convergence

Convergence is to equal per capita shares of contraction by an agreed date, [here by 2050 [population base year 2050]]. The model will show any rates of C&C.

(1) Historic expansion of annual global CO₂ emissions
(2) Historic divergence of per-capita emissions within different regions and countries



Convergence



Inconstancy in the 'Constant Airborne Fraction' [CAF] of CO₂

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;

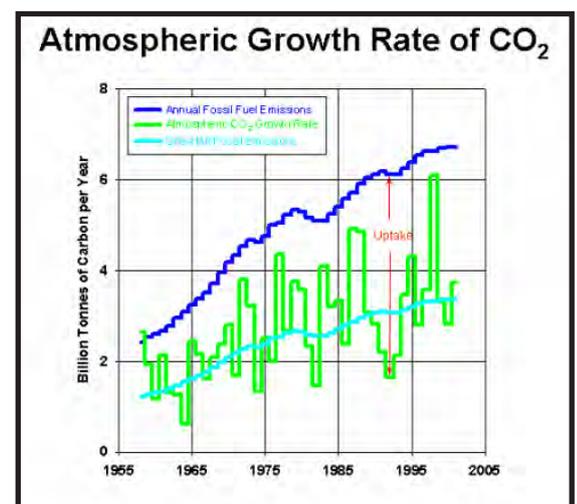
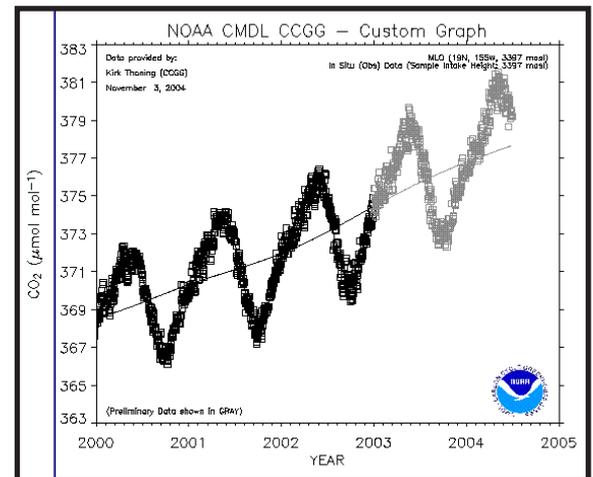
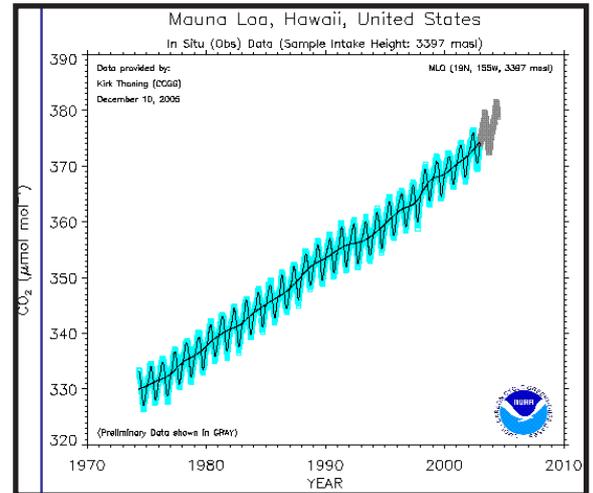
1. Emissions of CO₂ from fossil fuel burning rose from about ten million tonnes of carbon a year in 1800 to around six and a half billion tonnes at the present rising at an average rate of between 2 and 3% per annum, [See Chart overleaf],
2. Concentrations of CO₂ in the global atmosphere rose during 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.

Data collected at Mauna Loa Observatory [MLO] in Hawaii [NOAA] 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 a weight-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 even faster than was outlined in the IPCC 2nd and 3rd Reports. The delaying consequences of formerly aspirational climate politics come at a price.

Overleaf are graphs of future CO₂ emissions and their possible effects on future atmospheric concentrations. In two - 600 GtC and 300 GtC - integrals of emissions atmospheric retention of CO₂ is projected at three rates:

C: Airborne Fraction Constant at 50%, after original modelling;

A: Airborne Fraction Constant at 100%, constantly projecting the recent rate;

B: Airborne Fraction Constantly increasing from 50% to 100%.

Even if B is increasing only gradually, this needs to be considered. This shows that the deep cuts in CO₂ globally we are contemplating may prove ineffectual unless they are structured and pursued as a top priority, immediately. The case for urgent contraction is clear. If the overall rate 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.

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.

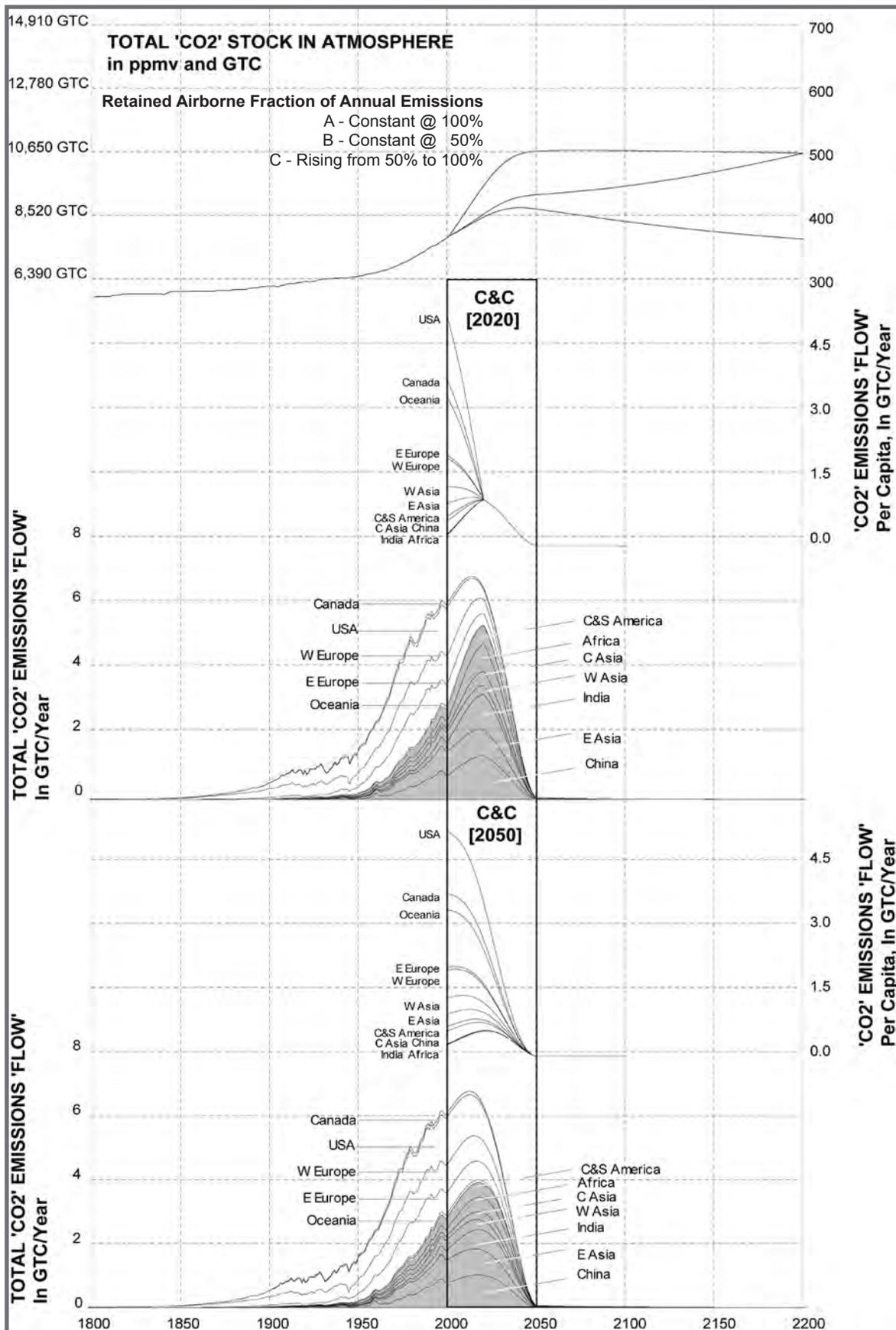
If the bath approaches the point of over-flowing, the tap needs to be turned off completely to avoid over-flow. The bath level however, continues to rise even while the tap is being turned off and at least until it is turned off.

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.

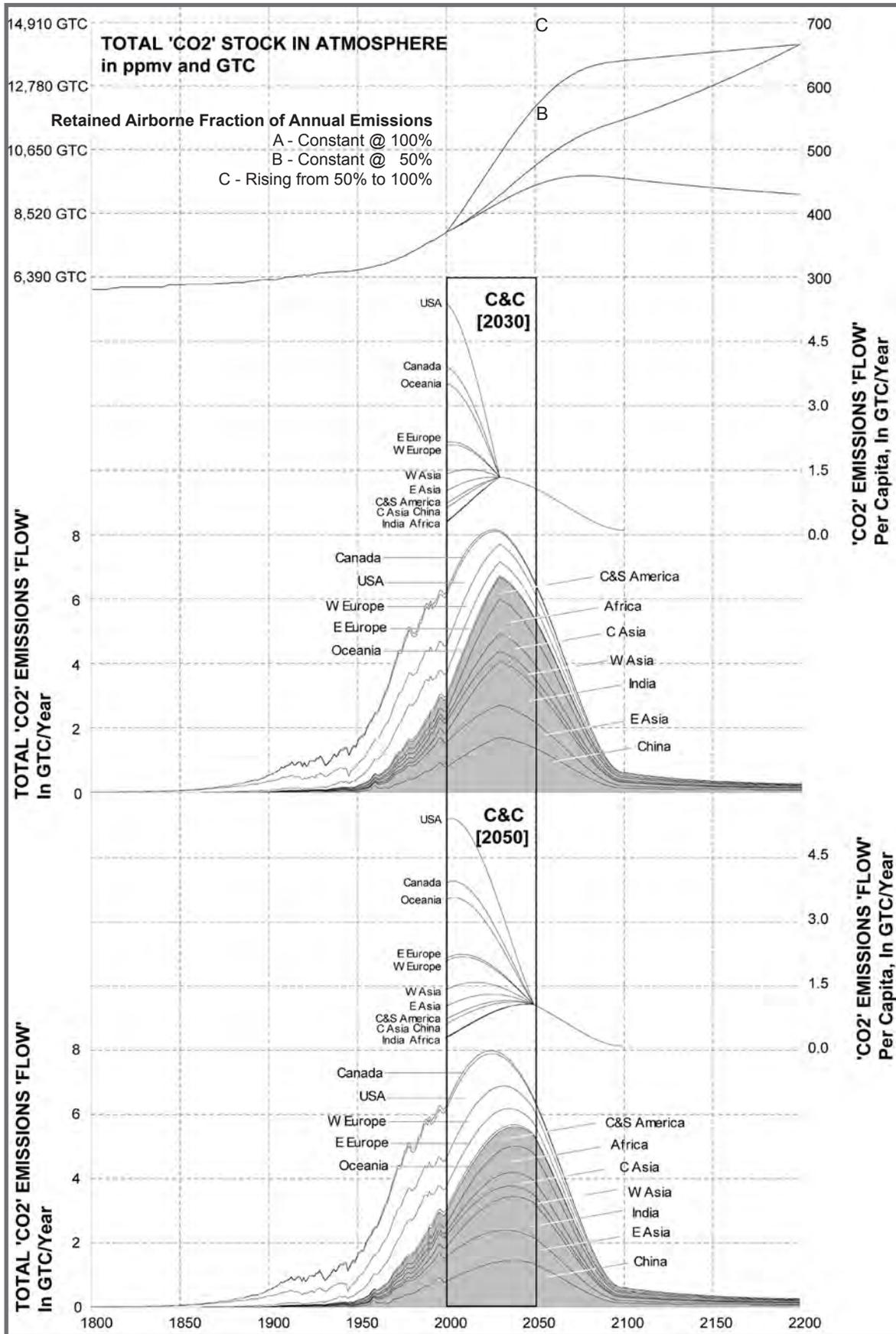
In the analogy, the tap is opening wider, the pressure behind it is increasing, the plug-hole is blocking up, the rate at which the bath is filling is accelerating and there are more and more people in the bath wanting to fill it; - the likelihood of the bath overflowing is itself, rapidly growing.

Here, with countries identified, these two scenarios are compared with different rates of convergence. This is to demonstrate the methodology of 'convergence-accelerated-relative-to-the-overall-rate-of-contraction'. This is C&C's way of resolving the argument between the North and the South about 'historic responsibilities' for emissions.

FULL CONTRACTION BY 2050 & FULL CONVERGENCE BY 2020 or 2050



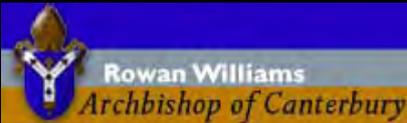
FULL CONTRACTION BY 2100 & FULL CONVERGENCE BY 2030 or 2050





*"Achieving the goal of the climate treaty [stabilize GHG concentrations] inevitably requires **contraction & convergence**."*

Joke Waller Hunter
UNFCCC Executive Secretary



LAMBETH PALACE

*"**Contraction & Convergence** appears utopian only if we refuse to contemplate the alternatives honestly."*

Dr Rowan Williams
Archbishop of Canterbury



bp



Contraction & Convergence

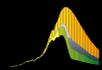
"C&C helps greatly.

It is inclusive and makes clear what needs to be achieved.

Without such a shared model - there will not be the necessary relationships that create the new and exciting possibilities, and the trust for shared action."

Chris Mottershead

Distinguished Advisor, Energy and Environment, British Petroleum plc



To The Rt Hon Tony Blair MP

13 07 2005

Dear Prime Minister

ice
Institution of Civil Engineers



Contraction & Convergence Framework

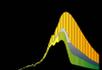
" we highlight the point made by the Corporate Leaders tackling climate change will impose some upfront costs. These can be minimised with the right framework in place.

Contraction & Convergence accepted by the UN and - amongst others - the RCEP, could well provide a fair structure for the engagement of all nations "

Yours sincerely

Colin Clinton Pres. Institution of Civil Engineers

Donald Leeper Pres. Chartered Institution of Building Services Engineers

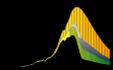


C&C BILL before the UK Parliament

*“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.”*



**Chairman All-Party Group
Climate Change
Colin Challen MP**



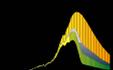
*This government and the
Conservatives both speak of a need
to ‘search for’ a new framework to
control emissions after Kyoto & 2012.*



*There is no need to look very far.
There is a framework in place which has the support of
the European Parliament, and of many other countries.*

*It is called “Contraction and Convergence” .
Liberal Democrats have supported it since 2001.*

**Sir Menzies Campbell
Leader of the UK Liberal Democrat Party**



“Conference recognises the urgent need for action to mitigate climate change given the potentially disastrous consequences for the planet.

We pledge to achieve a low carbon emitting society and commit the SNP to supporting the adoption of the internationally-recognised principle of “Contraction and Convergence”.”



Alex Salmond
Leader
Scottish National Party



“I urge the UK Government to provide leadership on climate change by committing itself to

Contraction and Convergence

as the framework within which future international agreements to tackle climate change are negotiated.

I confirm that the party also supports this pledge.”



Simon Thomas
Policy Director
Plaid Cymru



*“The 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 in advance of the next Conference of the Parties to the UNFCCC.*



We do not see any credible alternative and none was suggested during our enquiry.”

**UK House of Commons
Environmental Audit Committee
April 2005**



*“The Government should press for a future global climate agreement based on the **“Contraction and Convergence”** approach combined with the international the framework within which future international agreements to tackle climate change are negotiated.*



These offer the best long-term prospect of securing equity, economy and international consensus.”

**Royal Commission
Environmental Pollution**



MAYOR OF LONDON

“The solution to climate change requires a globally equitable model of emissions reductions.

*The **Contraction and Convergence** model calls for already large polluting countries to cut their emissions, while newly industrialising countries increase theirs, up to the point that we converge at a sustainable level.*

That, I hope, will be the ethos that will guide cities around the world.”

Ken Livingstone
Mayor of London



*“I support the concept of **“Contraction & Convergence”** as does the Environment Agency.”*

Sir John Harman
Environment Agency



*“An approach receiving significant attention is **Contraction and Convergence**.”*

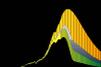


THE WORLD BANK

***C&C** is a science-based global framework whereby total emissions are reduced to meet a specific agreed target and the per capita shares of the industrialised and the developing countries converge with the rate and magnitude of C&C being agreed at the UNFCCC negotiating process.*

It applies the principles of precaution and equity; identified as important in the UNFCCC but not defined.”

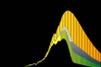
THE WORLD BANK



world council of churches

*“A fair distribution establishing the concept of equal per capita rights for all countries as proposed in **Contraction and Convergence**.”*

David Hallman
World Council of Churches



*“Policy-makers should reach consensus on a global framework for climate stability based on principles of precaution and equity such as **Contraction and Convergence**.”*



UNEP Financial Initiative



*“The WBGU recommends emissions rights be allocated according to the **“Contraction and Convergence”** approach.”*

German Advisory Council on Global Change

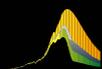


“We support the amendment proposed by the distinguished delegation from India and, to emphasise issues that still need clarification, we propose the inclusion, after “entitlements” - that is the proposal by the delegation of India the following wording: -



*“entitlements, the global ceiling date and time for **Contraction & Convergence** of global emissions because we think you cannot talk about trading if there are not entitlements; also there is a question of **Contraction & Convergence** of global emissions that comes into play when we talk about issues of equity”*

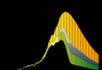
THE AFRICA GROUP Kyoto Climax Dec 1997



*“ 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”*



UNITED STATES OF AMERICA Kyoto Climax Dec 1997

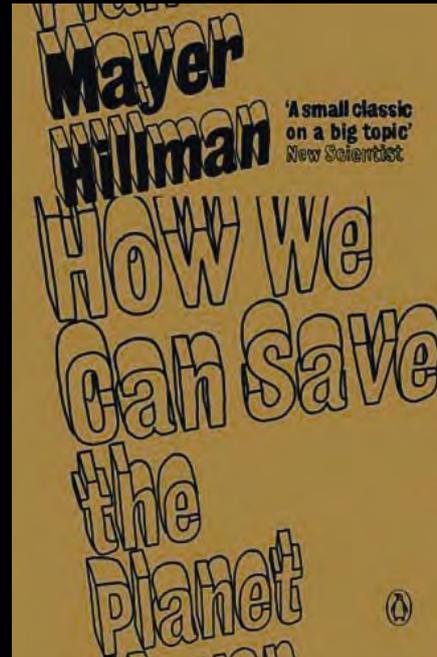


“A rational, brilliant and simple means of reaching a just global agreement on emission reductions is called . . .

Contraction and Convergence

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 Hero and Veteran of the War on Error



*“We wrote to Mr Blair saying this framework-based market is **Contraction and Convergence**.”*

C&C is global, long-term, effective and importantly - equitable.

From the outset developing countries have a guarantee of equitable allocations and assurance as to when this would happen.”

TEARFUND





*“ . . . to forestall further damages, deeper cuts in GHG emissions than as presently contained in the Kyoto Protocol are urgently required and these must be organised as universal equal entitlements as engraved in the principles of the **Contraction and Convergence Framework**.*



KENYA GOVERNMENT - COP-11 Dec 2005



“C&C is better than begging.

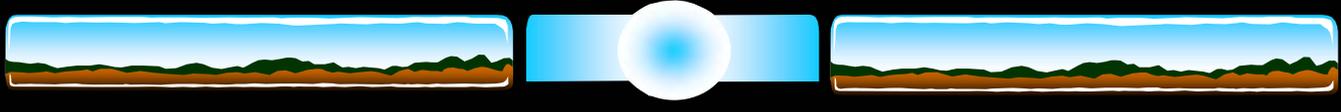
Aid is dehumanising and humiliating while C&C gives independence in choice of urgent development priorities.

Without this, Africa’s development aspirations are compromised, Millennium Development Goals remain unmet, NEPAD objectives will be compromised . . . prospects for global security and sustainability will decline.



KENYA GOVERNMENT - COP-11 Dec 2006





“The Rhino of damage from climate change is charging . . . Coming from Africa, I would only like to ask: -



For how much longer should Africa suffer from the impacts of Climate Change at the hands of others?

Would anybody care if Africa dropped from the globe?”

KENYA GOVERNMENT - COP-11 Dec 2006



“We must urgently involve the African Union in climate change negotiations since related disasters are beyond individual African governments; sub-regional Economic Groupings must engage as a matter of priority; we must recognize Climate Change and Post-Kyoto negotiations are environmental but also mainly economic and political with serious implications and ramifications for Africa.”



KENYA GOVERNMENT - COP-11 Dec 2006





“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

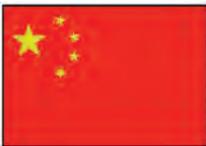


“Equity should guide the route to global ecological recovery. Policy Instruments such as ‘Tradable Emissions Quotas’, ‘Carbon Taxes’ and ‘Joint Implementation’ may well serve to make matters worse unless they are properly referenced to targets and time-tables for equitable emissions reductions overall. 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.”

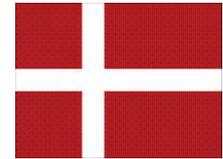
Sweden’s third national communication on Climate Change, 2001



“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. It 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 Advice 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 Responsibility, 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 countries - 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 CHARTERED
INSURANCE INSTITUTE

“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



International Federation
of Red Cross and Red Crescent Societies

“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

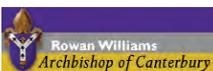
“Further and more ambitious emissions reductions targets should be agreed for the second and subsequent commitment periods, based on the principle of ‘contraction and convergence’ with the long-term goal of equalising per capita emissions across the world.”

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



LAMBETH PALACE

“Contraction and Convergence appears Utopian only if we refuse to contemplate the alternatives honestly.”

Dr. Rowan Williams; The Archbishop of Canterbury

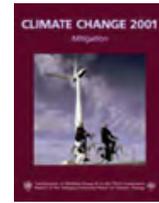
"The Green party of England and Wales strongly endorses the GCI/GLOBE campaign for Contraction and Convergence as the key ingredient in a global political solution to the problem of Climate Change."

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



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

THE JOHN RAY INITIATIVE
promoting environmental sustainability

"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

MAYOR OF LONDON



THE WORLD BANK

“... 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

“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



“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



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



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 getting the 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 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

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

"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 be 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



“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, combined 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

“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

“ . . . WBGU recommends emission rights be allocated according to the ‘Contraction and Convergence’ approach.”

**Dr. John Schelhuber;
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



Royal Commission On
Environmental Pollution

