



Green Growth and Contraction & Convergence

*“Principle without Practice is useless
Practice without Principle is dangerous.”*

Liberal Democrat Conference
Side-event 22 09 2012

A short report on the meeting is here: -
http://www.gci.org.uk/GLD_Fringe_Meeting_Report.html



Rising greenhouse gas [GHG] emissions from fossil fuel burning are accumulating in the global atmosphere putting the future at risk: -
http://www.gci.org.uk/Documents/CO2_MLO.pdf

The United Nations Framework Convention on Climate Change [UNFCCC] is a response to this threat. The objective of the UNFCCC is to achieve safe and stable GHG concentration in the global atmosphere. Its principles are ‘precaution’ and ‘equity’.

However, after twenty years of negotiations we are continuing to cause the problem faster than we act to avoid it. With prospects for UNFCCC compliance dwindling, we are faced with increasing climate calamities and potentially a catastrophe, so this is now a context of urgency and equity.

Contraction & Convergence [C&C] was introduced by GCI to the UN in 1996. C&C is a measured response to the growing reality of damages from climate changes. It is an organising principle with which to establish a framework for climate-security at the UN.

C&C was supported at COP-3 in 1997. It has been in the manifestos of the Liberal Democrats and the Greens for some years and is the basis of the UK Climate Act of 2009: - <http://www.gci.org.uk/climateact.html>

C&C & Green Growth integrates four domains [see page four]: -
http://www.gci.org.uk/images/C1_C2_C3.pdf

The First domain - is the size of the global emissions-budget needed for compliance with the UNFCCC objective.

This is the ‘*contraction-concentrations*’ calculation. An analogy helps to understand this. Our source emissions flow [*like water through a tap*] into the atmosphere where they accumulate [*as in a bath*] and where only half are removed by the ‘sinks’ [*which is like the plug-hole in the bath*] while the other half accumulate in the atmosphere. In the analogy, to stop the bath overflowing the tap must be turned right off, especially as the plug-hole is ‘blocking up’.

In the real world ‘blocking up’ means the ‘*sink-function*’ is becoming *less* efficient as GHG concentrations increase in the atmosphere and the oceans. It is not becoming *more* efficient, as the climate modelers behind the UK Climate Act would have you believe: -

http://www.gci.org.uk/animations/Sources_and_Sinks_UK_Climate_Act.swf

The Second domain – is the full-term international sharing of the safe emissions-contraction-budget on the rational basis of equal per person shares in it. This is the *'contraction-convergence'* principle. It makes measurement possible. It is now increasingly supported at the UN and beyond as defending global inequality will never achieve majority support.

The Third domain - is the *'contraction-conversion'* process or 'green growth'. This is needed to implement the consequences of committing to the C&C principle, UNFCCC compliance and deliverance from further climate-calamities.

The Fourth domain - the growth of climate-damages and economic development where the record shows that the damage curve has been unfolding at twice the rate of growth: -

http://www.gci.org.uk/animations/BENN_C&C_Animation.swf

If continued, this damage curve is a global prognosis of expansion, divergence and collapse. No-one sensible wants this to go further.

Responses to the Four Domains

The first domain *'contraction-convergence'*. For UNFCCC-compliance, these must be measured and controlled in a risk-averse manner. Evidence shows that we should enact an emissions contraction-budget that weighs no more than 250 billion tonnes carbon [Gt C] that achieves more than zero emissions globally by 2050, with an atmospheric carbon concentration of not more than 430 ppmv.

The carbon-budget in the UK Climate Act defines a 480 Gt C carbon-budget over the next 100 years. This was a politically construct. It claimed that atmospheric GHG concentrations will start to fall in 2050, just halfway through this emissions budget. This claim is patent error. It means the global sink-function will have become more than 100% efficient by 2050 and this is not supported by any evidence. Also it fails to recognize that all the 'returning carbon' mooted in the Act will be dumped in the ocean, raising ocean-acidification even further. This will help to destroy that sink, rather than recover it as it will not go back down the coal oil and gas mines. It is no wonder that the Act offered only a 44% probability of not exceeding two degrees.

The carbon-budget of 250 Gt C I suggest is *half* that in the Climate Act. It gives us better odds for not exceeding two degrees and runaway climate change. Doing this in the next forty years is still achievable if we are goal-focused and C&C organised at the UNFCCC.

The second domain *'contraction-convergence'*. We must be willing to negotiate an accelerated 'rate of convergence' to equal per capita sharing within the contraction-event, recognising that: -

1. As the carbon-shares created by C&C are redeemable in the growing 'carbon-market', they will become very valuable;
2. The earlier the convergence date within the contraction budget, the more rapidly the gap between over-consumers and under-consumers is closed. Consequently the greater is the potential to compensate developing countries for creating this most serious problem in which historically they played no role at all;
3. As the developed countries that caused this problem, we are in no position to *prescribe* the rates of convergence as being 2050, as the UK tried and failed to do under the Labour Party and Ed Miliband's leadership at COP-15 in Copenhagen in 2009;
4. It was predictable the Chinese Government speaking for Developing Countries rejected this at COP-15 as being *'capped by the back door'*. We should have worked with the C&C support from Africa, India, China and the US that we had at COP-3 in Kyoto.

The third domain *'contraction-conversion'*. We need to recognize that the C&C principle without the practice of green growth is useless but that the practice of green growth without the C&C principle is dangerous. At its core, C&C is measured in carbon per person per unit-time, subject to the limit made by the objective of the UNFCCC.

This rationale is distinct from business-as-usual, where 'growth' is measured in the dominant numeraire - the 'monetary-unit'. 'Greening' the market in which this numeraire is still dominant will not be possible. Greening growth requires us to subordinate the old story of greed, fear and the survival of the fittest, to the new common purpose of survival and sharing prosperity. So the unit of green growth is a result of subordinating the monetary-unit to the domain-unit of C&C. We have to do this and the longer we leave it the harder it gets.

The fourth domain *damages and growth*. For future growth to be 'green' it must achieve a growth rate that is globally faster than the climate-damages curve that is already well-established because of continuing with near total fossil fuel dependence. Unchanged rates of climate change damages have the power to overwhelm civilization. Present curves show climate damages exceeding global growth in forty years. If we remain on this path, we remain unfit to survive and we, or certainly our children, will be overwhelmed.

In a nutshell, the four domains of C&C are four sides of the same box. We need to be outside it to see in, but we need to be in it to integrate and enact it. This makes it possible to turn the aspirational and incrementalist, '*market-based framework*' of the Kyoto Protocol into the constitutional and goal-focused *framework-based market* needed for UNFCCC-compliance and for green growth to succeed.

In this context of 'growth' and climate change damages, a prominent climate-economist in the UK was asked recently how long we have left to sort it out [is it too late]? He pointlessly answered, 'how long is a piece of string?' referring people to a Woody Allan joke about 'eternity being a very long time, especially towards the end'. It got a laugh for being funny and cute, but scored higher for avoiding the point.

All life aspires to the condition of music.

If you ask a string player 'how long is a piece of string?' he'll say exactly twice half its length: - halve the length, you double the frequency and get the octave. So string has a structure in which the overtone series is evident. Musical diversity is possible because of this unity.

Noting Pythagoras' discovery of this simple truth eons ago, Stephen Hawking recently paid tribute to its 'unified field' calling it the first recorded instance of a law of theoretical physics. This 'law' is like gravity. It underlies everything in politics and everything else. Here it is the measurement basis of C&C, where we want to be in tune with each other while acting together in time to avoid being overwhelmed by dangerous rates of climate change. Wanting all Country-Parties in the global climate deal for this purpose, the lead for the US recently called C&C the unified-field theory of climate-politics. He had a point.

C&C embeds its rational structure in the 'green growth' and that is the basis of all true future prosperity. On this basis a major Developing Country government has asked GCI to collaborate with them in a report on C&C and Green Growth. This will complete within the year.

Support

A global deal must be struck by 2015. In 2009 the House of Commons Environmental Audit Committee told Adair Turner that C&C is necessary to communicate clearly the enormity of what has to be achieved. The Lib Dems and the Green already have C&C in their manifestos. Nick Clegg and Chris Huhne support C&C and Vince Cable, along with both the chairs of that committee and the DECC committee, have also signed support for the C&C proposal to the UNFCCC. Many others here and abroad have done this too: -

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

http://www.gci.org.uk/UNFCCC_Submission_Co-Signatories.html

An all-party group of MPs supported all this before the last election: -

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

And there is much support in other UK parties and beyond: -

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

The Greens and the Liberal Democrats together can be champions and potential leaders of this approach in the UK and their coalition on this needs to be overt and grow. It can lead a mission to formally make C&C the basis of the global deal struck in 2015 at COP-21.

With this, we all – in this generation and in the generations to come – will need to work constantly to be both the generators of and the beneficiaries of success with this. This means working to bring green growth out of doing enough, soon enough, to avoid the dangerous rates of climate change that befall us if we don't.

Some have already surrendered and shied away from this saying: - '*que será, será, the future's not ours to see*'.

I say, 'don't surrender'. The battle has begun and we *can* see the future. We must unite and fight for C&C as our future depends on it. If you still ask, *que será, será?* I answer, the future is C&C.

6. C-BAT graphic over-view; 3 rates C&C in 4 Domains

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

GLOBAL DAMAGE COSTS/ DEVELOPMENT BENEFITS of CLIMATE CHANGE

Domain 1 OBJECTIVE

**Contraction &
Concentrations**

Domain 2 PRINCIPLES Precaution Equity

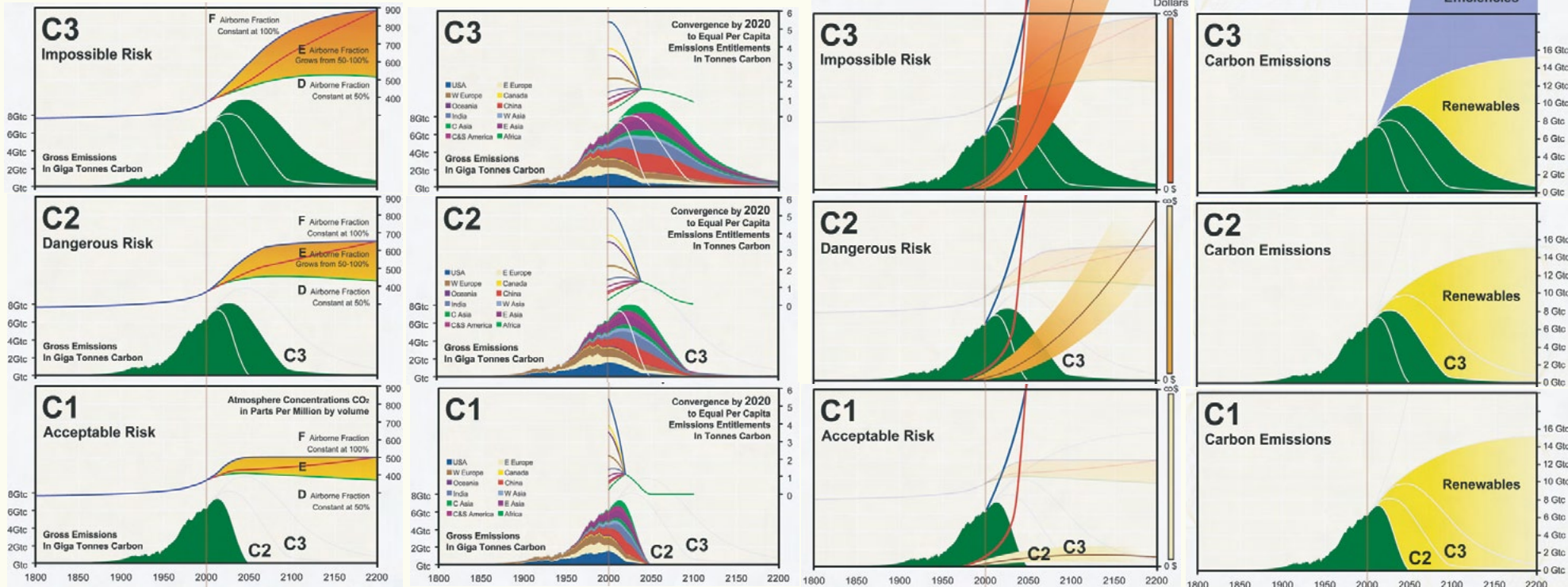
**Contraction &
Convergence**


Domain 3 DANGEROUS CLIMATE CHANGE

**Damage Costs
& Insecurity**

Domain 4 UN/SUSTAINABLE DEVELOPMENT

**Contraction &
Conversion**

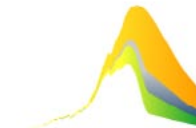


This entire animation is on-line at: - www.gci.org.uk/images/Final_presentation.exe
Touch buttons to advance within scenes and logos  to advance between scenes



7. Model animation - different rates 'sink-efficiency', C1, C2, C3

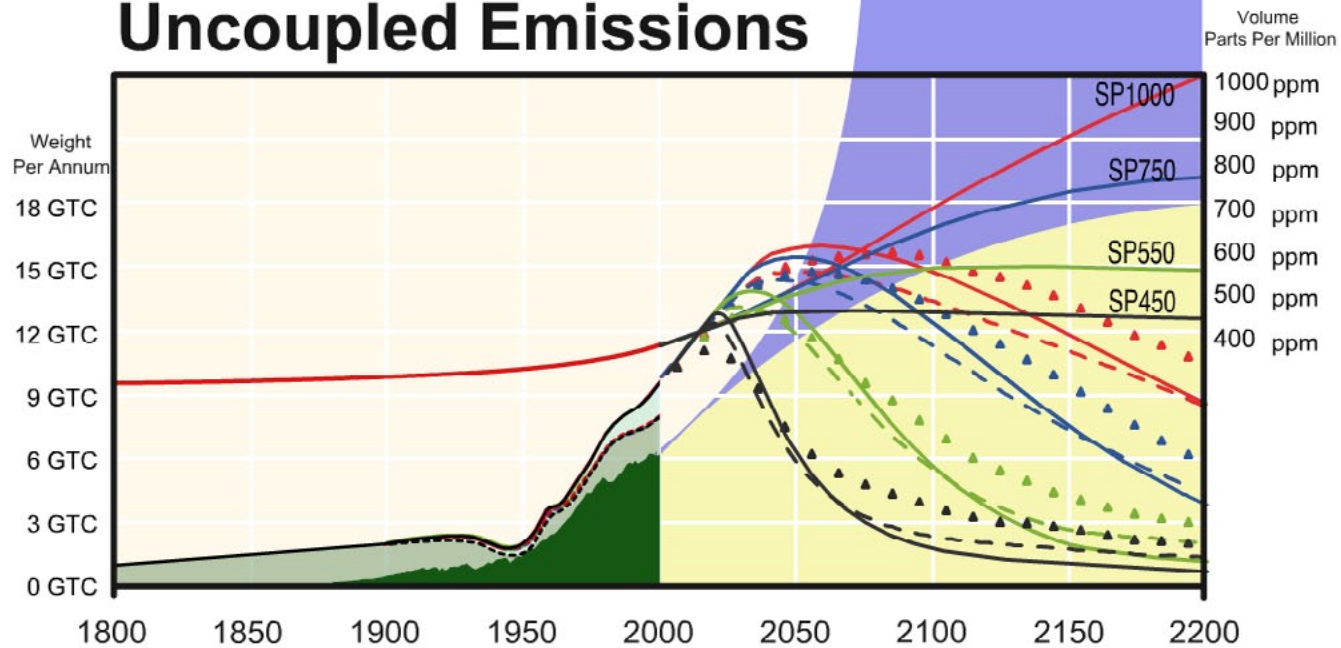
**C1, C2, C3
Compared**



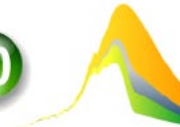


8. Later C&C Model-Animation linked to C4 MIP-IPCC AR4

Uncoupled Emissions



Global Commons Institute
www.gci.org.uk

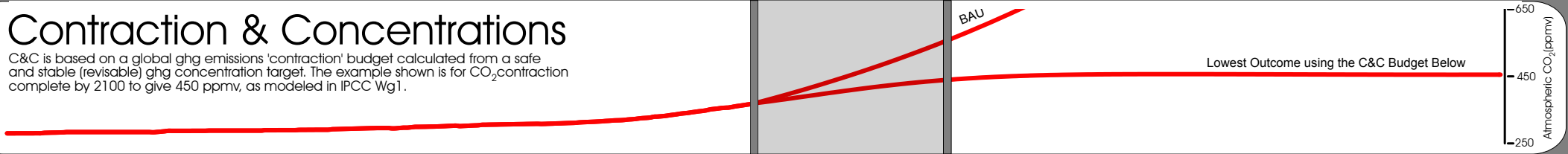


C&C,

9. Detailed and deeply 'zoomable' All Country C&C Graphic Go ADOBE 'TOOLS' and use 'Pan and Zoom'

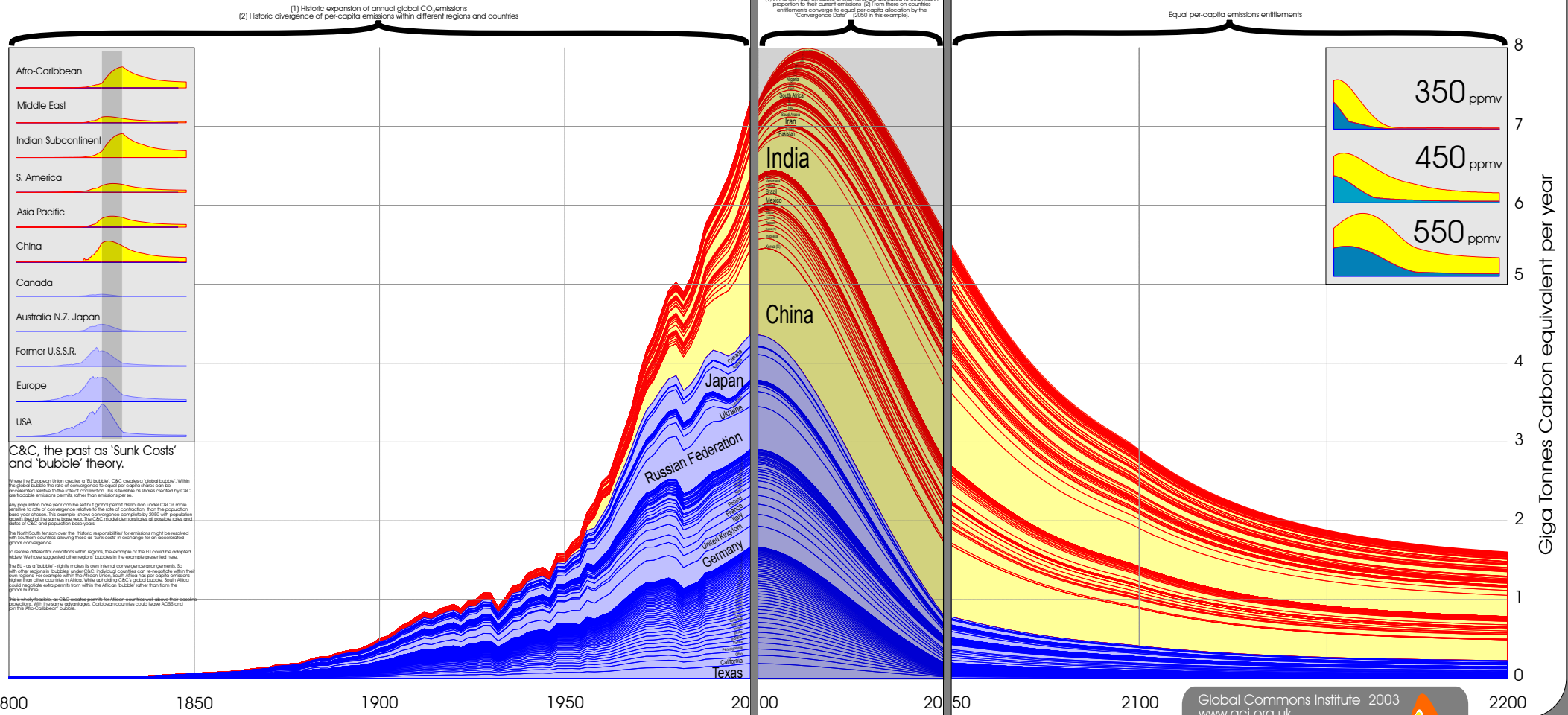
Contraction & Concentrations

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.



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.



C&C, the past as 'Sunk Costs' and 'bubble' theory.

When the European Union created a 'EU bubble', C&C created a 'global bubble'. Within the global bubble the rate of convergence to equal per-capita shares can be accelerated relative to the rate of contraction. This is possible as shares created by C&C are 'bubble' emissions permits, rather than emissions permits.

The population base year can be set but global permit distribution under C&C is most sensitive to the rate of convergence relative to the rate of contraction. Thus the population base year chosen. This example shows convergence complete by 2050 with population growth fixed at the appropriate level. The C&C model demonstrates a possible alternative state of C&C, and population base year.

The North-South transfer over the historic responsibility for emissions might be replaced with Southern countries allowing these to 'sink costs' in exchange for an accelerated global convergence.

To resolve differential conditions within regions, the example of the EU could be adopted. While we have suggested other regional 'bubbles' in the example presented here.

The EU as a 'bubble' might involve its own internal convergence arrangements, so with other regions in 'trouble' under C&C, individual countries can negotiate within their own regions. For example, with the African Union, South Africa that has already signed rights from other countries in Africa. While allowing C&C global bubble, South Africa could negotiate into permits from within the African 'bubble' rather than from the global bubble.

It is not wholly feasible, as C&C creates permits for African countries well above their current production, with the same advantages. Caribbean countries could have AGEE and join the Afro-Caribbean bubble.



Green Growth and C&C

