Contraction and Convergence (C&C)
Climate Justice without vengeance

Contraction & Convergence or 'C&C' ® ©

The C&C campaign 1989 - 2013

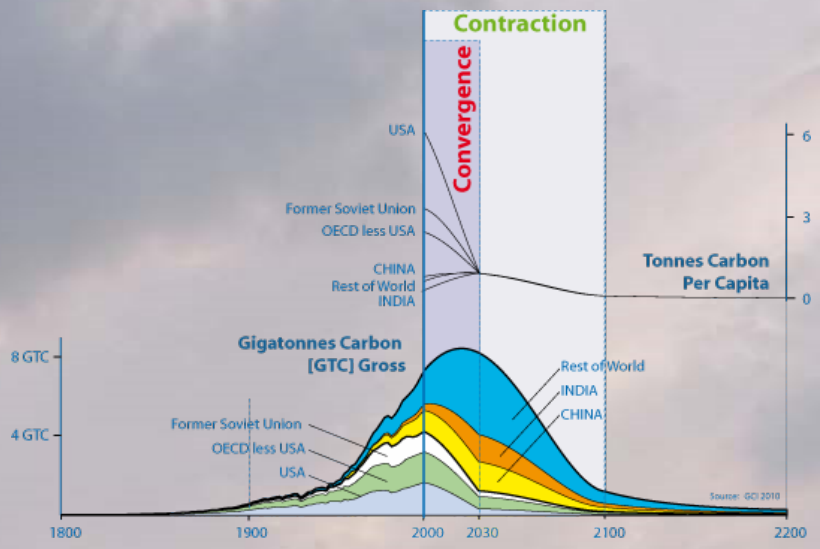
> *"The C&C concept and campaign has created a global standard that is now widely recognized as an outstanding and essential contribution to the global debate on what to do avoid dangerous rates of climate change."* [2009 - Ross Garnaut]

Twenty five years ago Aubrey Meyer became very concerned about global climate change. To deal with this, he gave up a successful career as a musician, founded the Global Commons Institute [GCI] and created the now famous ***'Contraction and Convergence'*** [C&C] proposal.

Since 1989 he has campaigned with utter dedication and great success to win the acceptance of C&C as a basis on which all nations can cooperate to achieve compliance with the objective of the UN Framework Climate Change Convention [UNFCCC].

C&C is a scheme for the nations of the world to negotiate a united agreement to limit global climate change and protect the global commons of the atmosphere by: -

1. Calculating a global emissions budget that results in compliance with the limit referred to in the objective of the UN Climate Convention and
2. Internationally allocating shares in that budget where it is assumed that everyone has an equal right to shares in it, if achieved at a negotiated rate and
3. Making 'Green Growth' or 'Ecological Recovery' a function of that agreement.



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

Thus, the C&C scheme provides a 'road-map' by which nations can agree on a C&C path which enables the poorer to grow and the richer to reduce in tandem, so that over the negotiated time-scale, all can achieve compliance with the objective of the UNFCCC in terms of its principles or 'Precaution' and 'Equity'.

The scheme has been dubbed *'Climate Justice without Vengeance'* and due to what have been extraordinary efforts it is now the most widely cited and increasingly the most widely supported model for negotiating UNFCCC-compliance. It is also recognized that C&C will form the basis of any future 'climate deal' the UN must make: - http://www.gci.org.uk/UNFCCC_Submission_Co-Signatories.html

> *"Contraction and Convergence is a very powerful idea and we are moving remorselessly towards it."* [2002 - Michael Meacher former UK Environment Minister.]

Why campaigning on climate is difficult

In Britain and elsewhere in Europe, NGOs are getting together to launch joint campaigns to mobilize the public on climate change. In the US the failure of climate campaigning has sparked contraversy over whether 'environmentalism is dead'. Carl Pope of the Sierra Club has argued that there's something different about climate change.

Here are ten factors which have made it hard to campaign effectively 'on climate' change'.

1. *Scientists defined the issue;*
2. *Governments ran off with the issue;*
3. *There was no campaign [sequence]: NGOs adopted secondary roles;*
4. *The issue had no public;*
5. *The media were left to define it in visual terms;*
6. *Governments soft pedalled on the issue;*
7. *Scientists led calls for education of the public;*
8. *Many NGOs tried to make the UNFCCC 'work';*
9. *Other NGOs tried to connect it to "bigger issues";*
10. *There is no common proposition.*

*Only extraordinary individuals such as Aubrey Meyer, father of **Contraction & Convergence'**, managed to penetrate this remote citadel. NGOs could prioritise it but were stuck in someone else's game. Alignment to the problem and the solution was largely absent & engagement opportunities were almost absent.*

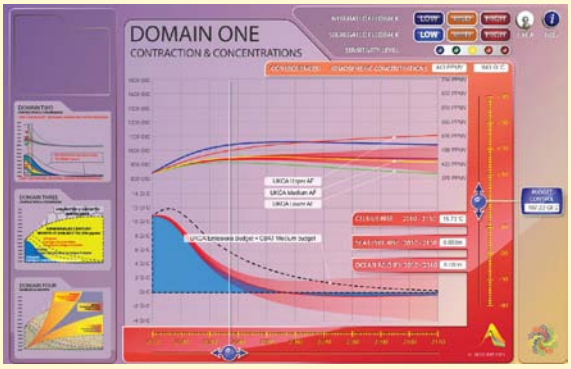
Chris Rose 'Campaign Strategy' - Greenpeace campaign strategist
http://www.campaignstrategy.org/articles/climate_difficulty.html

GCI 2012 onwards the Carbon Budget Analysis Tool embracing C&C

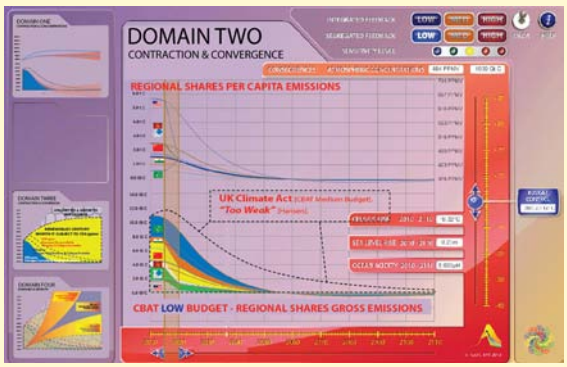
This 'CBAT' is a user-interactive screen-based 'heuristic device': - http://www.gci.org.uk/CBAT/cbat-domains/Domains.swf
A mock-up of the full '4 Domain' Carbon Budget Analysis Tool is here: - http://www.gci.org.uk/infoD2a.html

The unique value of CBAT is showing that the user-options in Domain Two - for 'Contraction & Convergence' - are governed by user-options in Domain One - 'Contraction & Concentrations' - so that UNFCCC-compliance means that 'equity' is a function of jointly observing a 'precautionary global limit'.

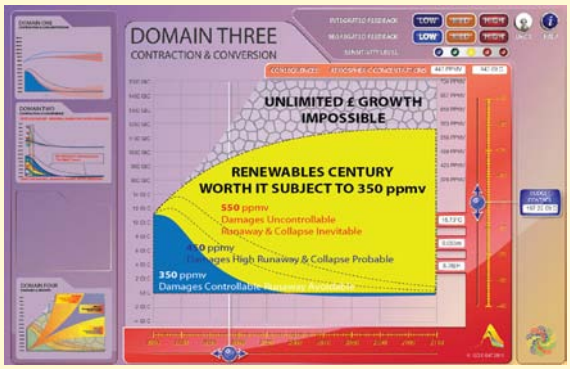
CBAT DOMAIN ONE; Contraction and Concentrations: -
Segregated-Feedback, Medium-Climate-Sensitivity, Slider at '0', UKCA Switch 'on'.



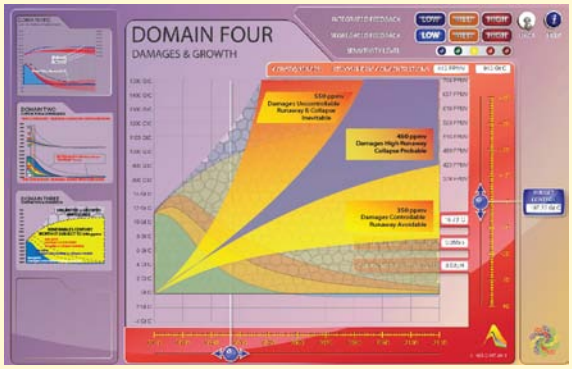
CBAT DOMAIN TWO; Contraction and Convergence: -
Starts 2015 - ends 2020 in this e.g. Horizontal slider[s] will work any start/end-points.



CBAT DOMAIN THREE; Contraction and Conversion: -
Green Growth; subject to DOMAIN-1 choice, time-space for renewables conversion to 'Green Growth'.



CBAT DOMAIN FOUR; Damages & Growth: -
again subject to DOMAIN-1 Budget/Slider-choice, un/controllable damage rates.



SOME RESPONSES TO CBAT so far: - http://www.gci.org.uk/Responses_to_CBAT.html

Laurie Barlow AIA San Marino, California United States of America L Barlow & Company: -
"CBAT is truly excellent! Just an incredible tool. It's showing the interconnectedness of the three factors (temperature, acidity, and sea level) with a graphic user interface, which nobody else has done. I don't think too many people "do the math" correctly, it requires an iteration of calculations and an examination of the different scenarios to understand the impact of 450 PPMV as a "runaway" scenario, and how many Gt C's per year have to be reduced in order to avoid it. This escapes the political posturing and goes directly to the analysis of the problem in such a way that people can understand the consequences and visually see what could happen in the future. Static charts can't show these relationships, especially with the segregated feedback scenario that reflects the planetary feedback relationships being added to human emissions and shows the acceleration of the impact of carbon on the biosphere. Depressingly, even with carbon emissions at zero, we don't get back to the planet we had in 1960 (316 PPMV), let alone the levels before the industrial revolution (260–280 PPMV).

Ernst von Weizsacker - Chairman of the Club of Rome: - *"Fine tool for gruesome reality-forecast."*

David Wasdell- Chairman of the Apollo Gaia Group: - *"We recognise that GCI has made a unique breakthrough in creating a user-interactive, non-directive dashboard with potential to simulate such an inclusive range of the system dynamics of the natural/human interaction! Separating the contribution to CO_2 concentrations driven by anthropogenic emissions from the contribution coming from the feedback system is brilliant at a conceptual level."*

Professor Helmut Burkhardt - Science for Peace & Ryerson University Toronto, Canada.
"CBAT is an excellent tool to visualize effects of human and natural actions."

Julian Salt - Insurance Consultant: - *"For negotiators to make the next steps more effective, they have to not only grapple with the rising tide of man-made emissions, but also the far more important issue of feedback emissions (natural and induced). This CBAT model created by Aubrey Meyer encapsulates this issue in his usual style of beautiful imagery that at a glance will show any negotiator the seriousness of the problem at hand. CBAT will, at a stroke, negate all present emissions targets as futile and force them to reconsider the whole issue from a global perspective. As past efforts have shown, if this approach is not taken another 10-20 years will be wasted in more UNFCCC meetings. I commend this model to any agency that cares to listen and act on his findings."*

Henry Nicholls Author of the Way of the Panda *"This is a great tool, one that shows clearly that the decisions we make now will have profound consequences."*

Bill McGuire - Professor of Geophysical & Climate Hazards, University College London [UCL]Director UCL's Aon Benfield UCL Hazard Centre [1997 2010]: - *"The failure of IPCC AR5 and the UKMO's UK Climate Act to address the critical issue of carbon feedbacks, particularly in relation to methane release as a consequence of permafrost thawing, is both disappointing and dangerous. By effectively setting the likely consequences of such feedback effects at zero, future temperature projections are minimised, so pandering to those who wish to play down the level of warming we can expect and reducing the perceived impact of climate change down the line. By separating out the effects of human-induced and feedback-related emissions, the GCI's brilliant CBAT visualisation tool sidesteps the wishful thinking and provides a sharp dose of reality. I urge all who wish to view a true picture of how climate change will transform our world as the century progresses to use it and promote it."*

Professor Michael Mainelli - Gresham College, Long Finance & London Accord: - *"This truly is a most wonderful device. Chiara and I will promote it via Long Finance's London Accord."*

**Donald A. Brown - Scholar In Residence, Sustainability Ethics and Law,
Widener University School of Law, Pennsylvania, USA: -** *"The new CBAT model will be of great value both to international climate negotiators, governments and NGOs engaged in international climate negotiations. It allows those interested in developing a global solution to visualize the otherwise complex interactions of international carbon budgets, atmospheric greenhouse gas concentrations, and emissions reductions commitments. Although I am personally familiar with the relationships between the variables represented in the CBAT, I found having the ability to change inputs to the model through the use of the CBAT made me understand at a deeper level the policy choices facing the international community. The CBAT model should be very useful for all who hope to understand future climate change policy options and the scale of the global challenge facing the world. I have been engaged in climate change policy options since the 1992 Earth Summit at which the United Nations Framework Convention was opened for signature and have attended most of the Conference of Parties under the UNFCCC since then. Yet even though I have significant experience and knowledge about future climate change policy challenges, the CBAT model helped me visualize the significance of certain policy options facing the world. I also fully support efforts to make contraction and convergence (C&C) the central framework for allocating national greenhouse gas emissions in the years ahead. C&C is also flexible enough to deal with several equity issues raised by others."*

**Walter Vergara- Chief, Climate Change and Sustainability Division (INE/CCS)
Inter-American Development Bank: -** *"Good initiative."*

Dave Hampton - The Carbon Coach: - *First impressions are immensely positive. It's fresh, clear and good looking and conjures up memories of those exhibits i used to love at the science museum as a child where you could twiddle a couple of knobs and influence what you saw. I like the clinical delivery of the three vital stats - the (devastatingly all important) numbers - without any panic fuss or judgement: sea level, ocean acidity, and of course mean temp rise. I guess C-BAT is mainly for relative experts but I like the way it integrates everything. You can imagine a Facilities Manager using a tool like this to optimise the long term comfort conditions for their occupants over time.*

Prof Paul G. Harris - Chair of Global & Environmental Studies Hong Kong Inst. of Education: *- GCI's new Carbon Budget Analysis Tool is an innovative way to help citizens, government officials & non-governmental actors get their heads around the growing impacts of our lifestyle choices for the future. CBAT illustrates how changes in how we live, whether we pollute the atmosphere more in the future or finally overcome our addictions to pollute less, can have marked consequences in future decades. A vital message that comes from CBAT is that acting now will be far easier than acting later – and that doing nothing will be catastrophic indeed."*

Using Carbon Budget Analysis Tool [CBAT] to analyse the published results from IPCC AR5 Policy Makers Summary - September 2013.

IPCC AR5 WG1 'Carbon Budgeting' for a maximum of two degrees Celsius states: -

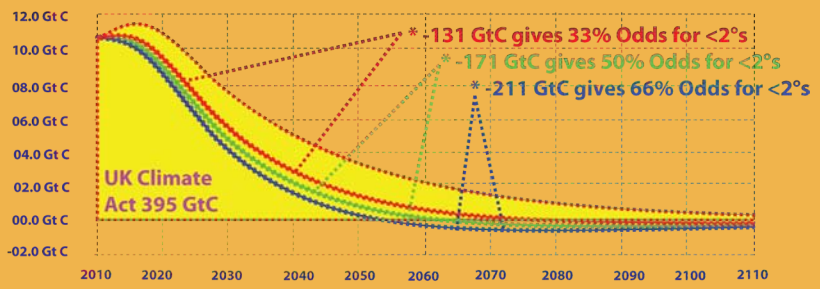
- the total emitted must not exceed 1,000 Billion Tonnes Carbon [1,000 Gt C]
- the total already emitted is estimated at 616 Gt C, or 513 Gt C, or 446 Gt C

As AR5 WG1 sets the odds for 2°C for each at 33%, or 50%, or 66%, results show UKCA [395 Gt C 2010-2110] against IPCC's remaining Carbon-Budget as follows: -

[A] TWICE TOO LARGE [if 616 Gt C already]

Greater than 100% Emissions cuts needed globally by 2060 [NB IPCC omits positive feedback effects from melting permafrost in this calculation].

If 616 Gt C already emitted, IPCC AR5 shows UK Climate Act: -

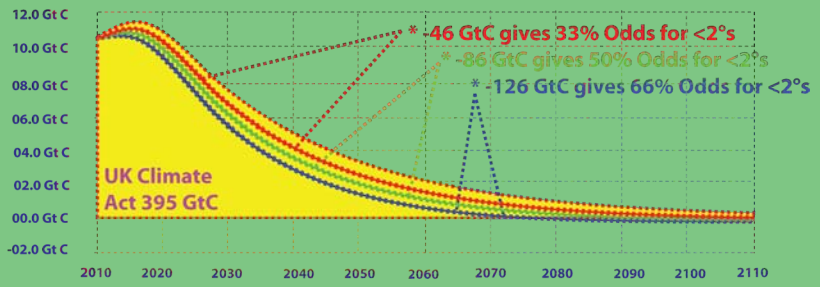


IPCC AR5 Odds for 2° C	Cumulative 1800 to 'Future'	+ Non-CO2 Forcings in RCP 2.6	Emitted Already [Contentious]	Final Residual Balance	UKCA 395 GtC Reduce UKCA by . . .
33%	1,560 Gt C	880 Gt C	616 Gt C	264 Gt C	131 Gt C
50%	1,210 Gt C	840 Gt C	616 Gt C	224 Gt C	171 Gt C
66%	1,000 Gt C	800 Gt C	616 Gt C	184 Gt C	211 Gt C

[B] A THIRD TOO LARGE [if 531 Gt C already]

Up to 100% Emissions cuts needed globally by 2060 [NB IPCC omits positive feedback effects from melting permafrost in this calculation].

If 531 Gt C already emitted, IPCC AR5 shows UK Climate Act: -

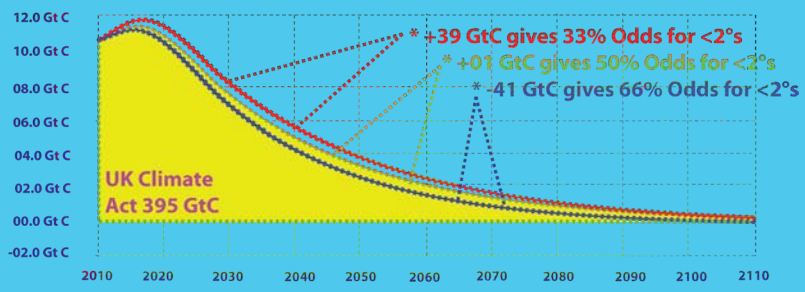


IPCC AR5 Odds for 2° C	Cumulative 1800 to 'Future'	+ Non-CO2 Forcings in RCP 2.6	Emitted Already [Contentious]	Final Residual Balance	UKCA 395 GtC Reduce UKCA by . . .
33%	1,560 Gt C	880 Gt C	531 Gt C	349 Gt C	46 Gt C
50%	1,210 Gt C	840 Gt C	531 GtC	309 Gt C	86 Gt C
66%	1,000 Gt C	800 Gt C	531 GtC	269 Gt C	126 Gt C

[C] JUST ABOUT RIGHT [if 446 Gt C already]

Nearly 100% Emissions cuts needed globally by 2110 [NB IPCC omits positive feedback effects from melting permafrost in this calculation].

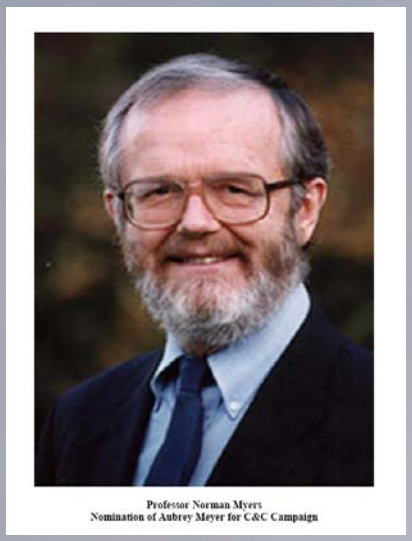
If 446Gt C already emitted, IPCC AR5 shows UK Climate Act: -



IPCC AR5 Odds for 2° C	Cumulative 1800 to 'Future'	+ Non-CO2 Forcings in RCP 2.6	Emitted Already [Contentious]	Final Residual Balance	UKCA 395 GtC Reduce UKCA by . . .
33%	1,560 Gt C	880 Gt C	446 Gt C	434 Gt C	-39 Gt C
50%	1,210 Gt C	840 Gt C	446 Gt C	394 Gt C	1 Gt C
66%	1,000 Gt C	800 Gt C	446 Gt C	354 Gt C	41 Gt C

Some of the recognition for these efforts is recorded here, starting with twelve Blue Planet Award winners.

Professor Norman Myers [2001]



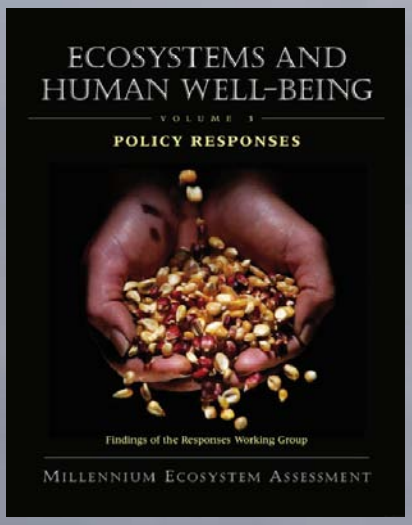
*This remarkable **'Contraction and Convergence'** campaign has been almost entirely due to Meyer's personal efforts. He has conceived the ideas, he has developed them, he has formulated the policy responses, and he has taken them to governments, agency bureaucracies, international bodies, NGOs, media and whoever else would listen to his persuasive message. He has gained access to dozens of ministers and other top-flight officials. He has accomplished all this from a small office in London with an annual budget average of less than £10,000.*

For this work, Meyer was awarded the 1997 British Environment Media's 'Andrew Lees Memorial Award' with following citation: -

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

Professor Norman Myers
http://www.gci.org.uk/Documents/Myers_Nomination_Meyer.pdf

Sir Robert Watson Fomer Chairman IPCC [2010]

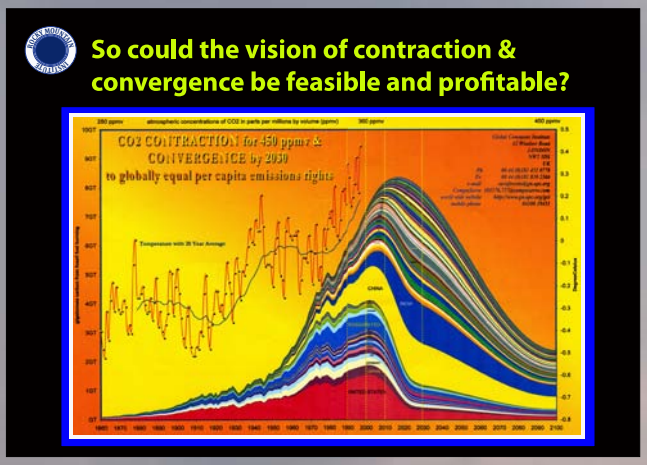


*An approach receiving significant attention, endorsed by the German Advisory Council on Global Change, is some form of **'Contraction and convergence'** whereby total global emissions are reduced (i.e., contraction) to meet a specific agreed target, and the per capita emissions of industrialized and 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. "Contraction and Convergence" (C&C).*

***'Contraction and convergence'** is a science-based global climate-policy framework proposed by the Global Commons Institute (GCI) with the objective of realizing "safe" and stable greenhouse gas concentrations in the atmosphere. It applies the principles of precaution and equity, identified as important in the UNFCCC but not defined, to provide the formal calculating basis of the C&C framework.*

UN Millennium Project on Environmental Sustainability & Energy R. Watson Chair IPCC & Chief Scientist, World Bank
http://www.gci.org.uk/Documents/Watson_2004_.pdf

Amory Lovins [2007]



*The equitable vision of **'Contraction and Convergence'** where all countries have the same carbon emission rights per person and everyone continues to get richer, especially in developing countries, could head for carbon reductions around 90% over the next century.*

Could that grand vision of a richer, fairer, cooler and safer world actually be feasible and profitable?

ASAHI GLASS Blue Planet Lecture Amory Lovins 2007
http://www.gci.org.uk/Documents/Asahi_2007_Lecture_Lovins.pdf

Professor William Rees [2012]

At a meeting of the World Federalists, guest speaker Dr. William Rees gave this speech standing, without notes. It shines with clarity, developed form decades of lecturing, in the field of his passion, which he himself developed – the "ecological footprint." Rees is a professor at the University of British Columbia, Canada – and a Fellow of the Post Carbon Institute.

It is no exaggeration to say that Bill Rees has taught and inspired at least two generations of students, ecologists, and environmentalists around the world. Here he outlines the condition of humanity on a small planet, with thoughts on how both can survive.

The recording is from April 14th, 2010 at the Unitarian Church in Vancouver.

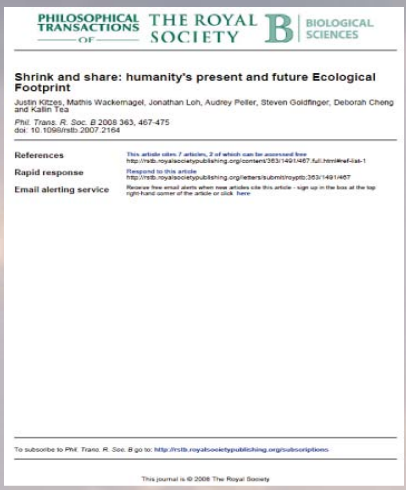
The really inconvenient truth, which we do not wish to discuss, and certainly is not on any political platform to date, are these ones. This is actually a statement from the World Business Council on Sustainable Development, or at least the output from a workshop they held in the early '90's in Antwerp, Belgium. Looking at the data on material resource trends, pollution around the Earth, matching this against production and carrying capacity, that workshop concluded that in the industrial world, reductions of up to 90 percent would be required by the middle of this century, in order to enable necessary growth to occur in the Third World, and to keep the whole within the carrying capacity of the planet.

*This is now a version of what we call **'Contraction and convergence'** We in the rich countries have got to slow down. In fact reduce our consumption to create the ecological space necessary for those who deserve to grow, so that they can come up to a decent standard. Keep in mind there are now officially a billion people on Earth who are malnourished, that's calorically malnourished.. And probably another two billion who are deficient in some dietary standard or other. We don't notice, because we've always had plenty in this resource-rich part of the planet. But the fact is, about half the people on Earth are still living the Malthusian dilemma. Just based on our consumption date, we in North America should be designing an economy that uses 80 percent less in absolute terms in order to create the space for others to gain their fair share.*

***'Contraction and convergence'** has to be the way, if you are going to have equity on a single planet, and sustainability at the same time. We should be designing a smaller, equitable steady-state economy, that maintains itself within the carrying capacity.*

Professor William Rees School of Community and Regional Planning at the University of British Columbia (UBC)
http://www.gci.org.uk/Documents/Rees.pdf

Matthis Wackernagel [2012]



PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B BIOLOGICAL SCIENCES

Shrink and share: humanity's present and future Ecological Footprint

Justin Kitzes, Mathis Wackernagel, Jonathan Loh, Audrey Peller, Steven Goldfinger, Deborah Cheng and Kallin Tea

Phil. Trans. R. Soc. B 2008 363, 467-475
doi. 10.1098/rstb.2007.2164

References This article cites 7 articles, 2 of which can be accessed free http://rstb.royalsocietypublishing.org/content/363/1491/467.full.html#ref-list-1

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"The current state of global overshoot highlights the need for analysis and strategy to bring the human economy within the limits of the biosphere.

*Similar concerns about global emissions of carbon dioxide have led to a conceptual framework for reducing these emissions known as **'Contraction and convergence'**.*

*First described by the Global Commons Institute (Meyer 2000), **'Contraction and convergence'** proposes a framework for stabilizing atmospheric carbon dioxide concentrations through two complementary approaches:*

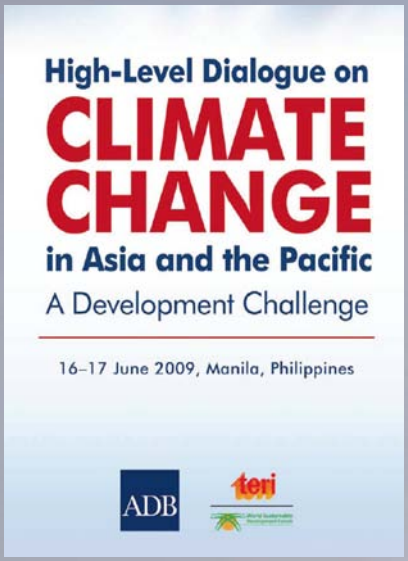
Contraction. The need to reduce humanity's carbon dioxide emissions to a level that will result in the eventual stabilization of atmospheric carbon dioxide at an agreed-upon level (e.g. 550 ppm).

Convergence. The need to collectively negotiate how this reduction in greenhouse gas emissions will be allocated between nations.

*Since its initial debut, the contraction and convergence framework has gained increasing recognition and sponsorship from decision makers, particularly in Europe. Influential organizations such as the European Parliament have passed resolutions using **'Contraction and Convergence'** as a basic principle (e.g. European Parliament 1998)."*

Shrink and share: humanity's present and future Ecological Footprint Justin Kitzes, Mathis Wackernagel, Jonathan Loh, Audrey Peller, Steven Goldfinger, Deborah Cheng and Kallin Tea
http://www.gci.org.uk/Documents/Footprint_RS_.pdf

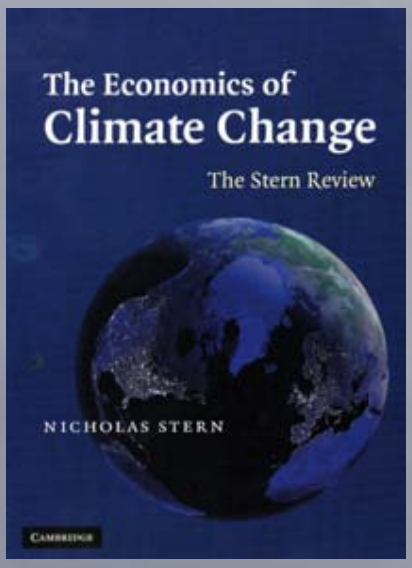
Emil Salim [2006] and Maurice Strong [1995]



*"The framework of **'Contraction and Convergence'** provides a flexible methodology to address the problem of allocation of emission rights. The contraction of overall world emissions pursued along with the convergence of countries' average per capita emissions, allows developing countries to partake of the carbon budget. The per capita entitlements approach is an effective one in that it takes into account historical responsibility and is based on the egalitarian distribution of the commons, within which international justice positions of causal responsibility such as the 'polluter pays principle,' come in."*
"High Level Dialogue on Climate Change"on C&C

Emil Salim - Minister of the Republic of Indonesia; Head of Indonesia Delegation for UNFCCC, Chair 10th UNSD, PrepCom World Summit.
Maurice Strong - Member of US National Academy of Science; Under Secretary General of the UN; Senior Advisor to President World Bank; Board Member World Economic Forum; Exec Director UNEP;
Ursula Schäefer-Preuss - Vice President of ADB
Haruhiko Kuroda - President and Chair ADB Board
Ban Ki-moon - Secretary General of the United Nations
Rajendra Pachauri - Director of TERI, Chair IPCC
Yvo de Boer - Former Executive Secretary UNFCCC
Gloria Macapagal Arroyo - President Philippine
Zhou Dadi - Chief national energy strategy, People's Republic of China
Full Signatory List
http://www.gci.org.uk/Documents/ADB_Full_Signatory_List_.pdf

Professor Sir Nicholas Stern [2009]



*The notions of the right to climate protection or climate security of future generations and of shared responsibilities in a common world can be combined to assert that, collectively, we have the right only to emit some very small amount of GHGs, equal for all, and that no-one has the right to emit beyond that level without incurring the duty to compensate. We are therefore obliged to pay for the right to emit above that common level. This can be seen as one argument in favour of the '**Contraction and Convergence**' proposition, whereby 'large emitters' should contract emissions and all individuals in the world should either converge to a common (low) level or pay for the excess (those below that level could sell rights)."*

*Source: '**Contraction and Convergence**' ™*
(C&C) is the science-based, global climate policy framework proposed to the UN since 1990 by the Global Commons Institute (GCI)

The Economics of Climate Change - Nicholas Stern on C&C
http://www.hm-treasury.gov.uk/d/chapter_2_technical_annex.pdf

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The web-site of the Global Commons Institute [GCI] is here: -
http://www.gci.org.uk

More extensive evidence supporting claims C&C as the most widely cited & arguably the most widely supported model in the UN negotiations on climate change and the debates these have given rise to.

endorsements page: - http://www.gci.org.uk/endorsements.html
endorsements all: - http://www.gci.org.uk/Documents/endorsements_high_res_.pdf
support page: - http://www.gci.org.uk/support.html
awards page: - http://www.gci.org.uk/awards.html
publications page: - http://www.gci.org.uk/publications.html
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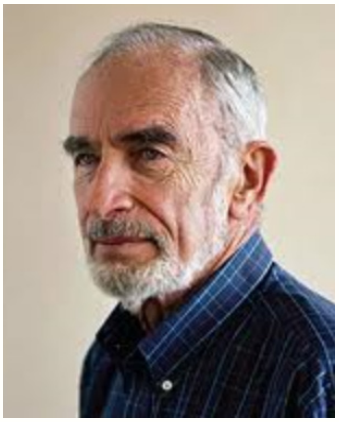
Paul Ehrlich [1999] and James Lovelock [1997]



Sir Paul Ehrlich
Optimum Popluation Trust

Sir James Lovelock
Optimum Popluation Trust

IUCN

Ashok Khosla
Former Chairman IUCN

OPT recommends: - *"The principle of **'Contraction and Convergence'** (rich and poor converging towards a common per person emissions target) be accepted as an equitable starting point for distributing total tolerable carbon emissions, provided that this is allocated to states on the basis of their population size at a specific date.*

This would encourage the adoption of population restraint policies; whereas allocation on a simple per person criterion would encourage continued population growth, thus continuously reducing every person's carbon entitlement."

Statement endorsed by: -

1. ***Prof Paul Ehrlich**, Population studies, Stanford University**
2. ***James Lovelock,** Gaia scientist and author*
3. ***Prof Norman Myers**, Fellow, Green College, Oxford University** and eight other eminent actors.*

The Optimum Population Trust on *Contraction & Convergence'*
http://www.gci.org.uk/Documents/OPT_Statement_on_Climate_Change1.pdf

IUCN Re-conceiving growth: 'Contraction and Convergence'

*In order to achieve fair shares of the global resources available, theories of growth need to be transformed to theories of **'Contraction and Convergence'**, to balance the increases in energy and material use that are needed to raise living conditions among the poor against contractions among the wealthy and super-rich. There is a growing interest in ideas of 'degrowth' (décroissance). Degrowth is a term created by radical critics of growth theory intended to make space for alternative projects as part of post-development politics. Degrowth is (like sustainability) an ethical concept of how the world needs to change. Proponents of contraction want 'to create integrated, self sufficient and materially responsible societies in both the North & the South'.Rich countries need to see ways forward that maintain quality of life, while shedding the habits and structures that damage the biosphere & corner an unfair share of the resources needed by the world's poor.*

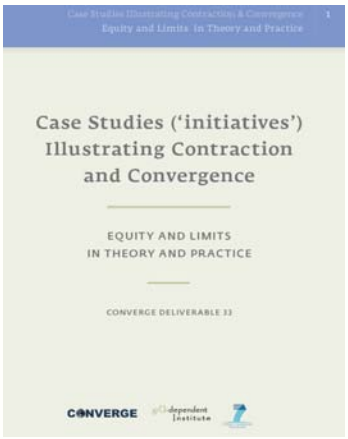
IUCN - Transition to Sustainability: Towards a Humane & Diverse World J Jeanrenaud W M Adams
http://www.gci.org.uk/Documents/IUCN.pdf

IUCN [1993] Former Chairman Dr Ashok Khosla

*The Report considers possible future implications by presenting three brief scenarios: (1) business as usual (leading to a tripling of global annual resource extraction by 2050); (2) moderate **'Contraction and Convergence'** (requiring industrialized countries to reduce their per capita resource consumption by half the rate for the year 2000); and (3) tough **'Contraction and Convergence'** (aimed at keeping global resource extraction at its current levels). None of these scenarios will lead to actual global reductions in resource use, but all indicate that substantial reductions in the resource requirements of economic activities will be necessary if the growing world population can expect to live under conditions of sustainable resource management. The key message of the tough scenario is that despite population growth to roughly 9 billion people, the pressure on the environment would remain roughly the same as it is now. The emissions correspond approximately to the lowest range of scenario B1 of the IPCC SRES, but are still 20% above the roughly 5.5 GtC/yr advocated by the Global Commons Institute for **'Contraction and Convergence'** in emissions (GCI, 2003).*

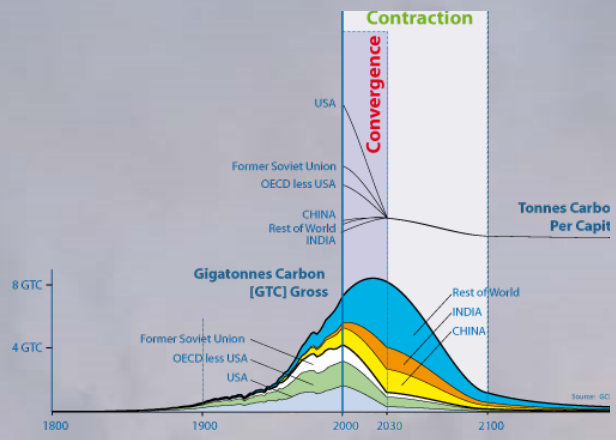
UNEP Decoupling Natural Resource Use & Environmental Impacts from Economic Growth. 2011 Dr. Ernst Ulrich von Weizsäcker, Dr. Ashok Khosla, Co-Chairs, International Resource Panel (IRP)
http://www.unep.org/resourcepanel/decoupling/files/pdf/Decoupling_Report_English.pdf

Karl Henrik Robert [2000] Founder of The NATURAL STEP now working en groupe with the EU-Funded CONVERGE Project



CONVERGE
Incorporating the Natural Step

*The concept of **'Contraction and Convergence' [C&C]** and the CONVERGE project originated with Aubrey Meyer & The Global Commons Institute (GCI). C&C is a global climate policy framework proposed to the UN since 1990 by GCI as a way to manage and reduce anthropogenic carbon dioxide through a burden sharing approach.*



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

That the C&C concept has gained substantial traction and recognition since the foundation of the Global Commons Institute in 1990 in the national and international policymaking and decision-making arena can be recognised in the following quotation from the executive secretary of the United Nations Framework Convention on Climate Change;

'Achieving the goal or the climate treaty [to stabilize Greenhouse gas emissions] inevitably requires Contraction &Convergence" (Waller Hunter, UNFCCC Executive Secretary, in CCP).

C&C has been credited with influencing both the Kyoto Protocol and its successor. The principle of C&C has been formally recognised in European Parliament resolutions (European Parliament 1998) and is supported by numerous policy makers, academics, NGOs and lay people.

One of the advantages of C&C is the recognition that any effective and sustainable response to slowing the rise in carbon dioxide levels in the atmosphere inevitably requires addressing the issue of equity - who should reduce carbon emissions and by how much? C&C effectively slices the Gordian knot of allocating responsibility for cutting carbon dioxide emissions by proposing a global per capita allocation solution (a so-called 'strong equity' approach) which also takes account of the issue of the 'historical responsibility' of industrialised nations through its proposal for negotiated rate of convergence. Many scientists and policy makers have come to consider this approach to be not only the most equitable but also the most pragmatic approach to managing climate change when compared to other carbon reduction regimes.

The potentially severe impacts of climate change (IPCC 2007) and the resounding lack of success of alternative approaches to decreasing carbon emissions continue to make the C&C approach attractive.

The CONVERGE project focus on equity and equality based approaches to managing resources derives partly from the C&C carbon reduction framework as described above. Our most important objective is to link the scientifically-validated need to reduce (i.e. to contract) resource use with a justice-based approach to apportioning the responsibility for doing so (to converge).

Case Studies Illustrating Contraction and Convergence
Equity & Limits in Theory & Practice - The CONVERGE Project

http://intezet.greendependent.org/documents/CONVERGE_ebook_EquityWithinLimits_initiatives_web.pdf

IPCC and C&C over the years

Sir John Hougton - Former Chairman IPCC WG1

Sir John Houghton
Former Chairman IPCC WG1

*"Since the formulation of **'Contraction and Convergence'** [C&C], Aubrey Meyer has tirelessly and selflessly argued for and promoted it with great energy and tenacity in scientific, economic and political fora. Admiration is frequently expressed regarding its elegance and simple logic and it has been widely accepted by policy makers and by NGOs as a basis that should underlie the next stage of policy formulation.*

There is no other proposal in play that meets so many of the required principles and criteria or that has any real chance of succeeding. It is bound to be strongly influential in the crucial round of international negotiations in the UNFCCC that is about to begin.

*The personal dedication of Aubrey Meyer, born of a deep concern for global humanity and its future, is what has brought the **'Contraction and Convergence'** proposal to the influential position it holds today." I am most pleased to strongly support his nomination. I cannot think of a more appropriate recipient.*
Sir John Hougton - Former Chairman IPCC WG1

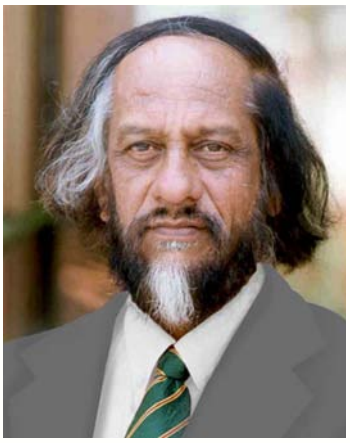
Raul Estrada Oyuela - Chairman Kyoto Protocol Negotiations

Raul Estrada Oyuela
Chairman of the Kyoto Protocol Negotiations

*"Long before the end of the Framework Convention negotiation, the Global Commons Institute (GCI) has presented a proposal on **'Contraction and Convergence'** aimed to reach equality in emissions per capita. We all in this room know the GCI model where contraction is achieved after all governments, for precautionary reasons, collectively agree to be bound by a target of global GHG emissions, making it possible to calculate the diminishing amount of greenhouse gases that the world can release each year in the coming century, subject to annual scientific and political review.*

*I read that IPCC's WG I Chairman Sir John Houghton said this is the "logical approach. Analysis of **'Contraction and Convergence'** in IPCC TAR is a must if equity is to be taken into account in the report."*
Raul Estrada Oyuela - Chairman Kyoto Protocol Negotiations
Intergovernmental Panel on Climate Change [IPCC]
Contraction and Convergence [C&C] www.gci.org.uk

Rajendra Pachauri - Current Chairman IPCC



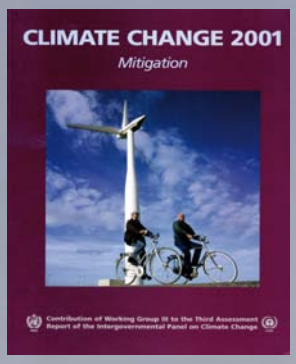
Professor Rajendra Pachauri
Current IPCC Chairman

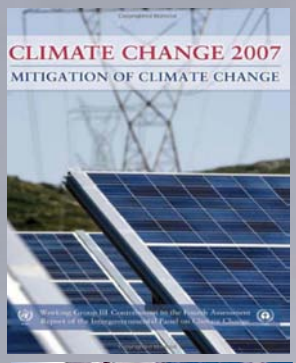
"If we are to limit global temperature rise to no more than 2-2.4 degrees C global emissions must peak no later than 2015 and start declining thereafter. The faster the decline the greater the possibility of our avoiding some of the worst impacts of climate change.

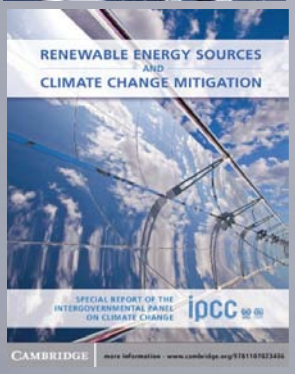
*So when one looks at the kinds of reductions that would be required globally, the only means for doing so is to ensure that there's **'Contraction & Convergence'.** I think there's growing acceptance of this reality. I don't see how else we might be able to fit within the overall budget for emissions for the world as a whole by 2050.*

We need to start putting this principle into practice as early as possible so that by the time that we reach 2050 we're well on a track for every country in the world that would get us there and we're not caught by surprise.

On the matter of 'historic resonsibility', there is no doubt that accelerating the rate of convergence relative to the rate of contraction is a way of answering that and we really need to get agreement from Developed and Developing Countries to subscribe to this principle."
Rajendra Pachauri - IPCC Chairman
Global Humanitarian Forum Geneva June 2009







*"Rights-based, that is based on equal (or otherwise defensible) rights to the global commons. A formulation that carries this insight to its logical conclusion is that of **'Contraction & Convergence'** (Meyer, 1999), whereby net aggregate emissions decline to zero, & per capita emissions of Annex I & non-Annex I countries reach precise equality."*

IPCC Third Assessment [2000] - Working Group 3 Chapter 1
http://www.grida.no/publications/other/ipcc_tar/

*"A number of scenario studies have been conducted for various countries within Europe. These studies explore a wide range of emission caps, taking into account local circumstances and potentials for technology implementation. Many of these studies have used specific burden-sharing allocation schemes, such as the **'Contraction and Convergence'** (C&C) approach (GCI, 2005) for calculating the allocation of worldwide emissions to estimate national emissions ceilings."*

IPCC Fourth Assessment [2007] - Working Group 3 Chapter 3
http://www.ipcc.ch/publications_and_data/ar4/wg3/en/contents.html

RENEWABLE ENERGY & CLIMATE MITIGATION [IPCC]

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

This is the valuable and recently published IPCC Report Renewable Energy Resources& Climate Change Mitigation, is based on this: -

RECIPE Report - the Economics of De-carbonization

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

Based on C&C, this **RECIPE Report** *[2009] says: -*

"C&C is the default policy scenario for the 450 and 410 scenarios."

*1) '**Contraction & Convergence'** (C&C).*

The C&C scheme (Meyer, 2004) envisages a smooth transition of emission shares from status quo (emissions in 2005) to equal per capita emissions in 2050.

It combines elements of grandfathering – allocation based on historic emissions – and equal per capita emissions.

It can thus be considered a compromise between a pure egalitarian regime and a grandfathering approach.

This is the scheme that was used in the default policy scenario and the 450 ppm scenario discussed above.

*Meyer, A. (2004): Briefing: '**Contraction & Convergence'** Engineering Sustainability (157). Issue 4, p. 189-192.*

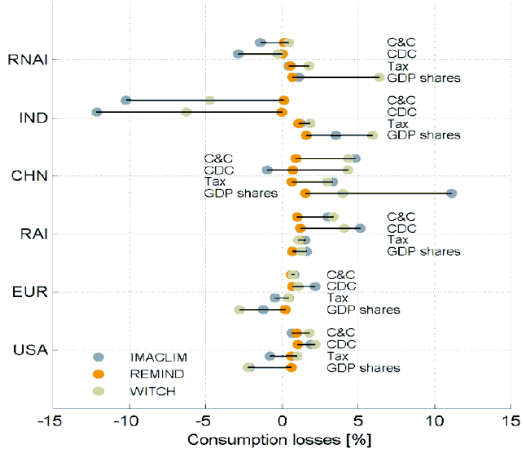


Figure SPM.10. Policy costs for key regions and different allocation principles (C&C=Contraction and Convergence, CDC=Common but differentiated Convergence, Tax=Uniform Carbon Tax, GDP Shares= equal emission right of emission per unit of GDP) from the RECIPE project for a 450 ppm CO_2 stabilization target. [Figure 6.30]

IPCC Fifth Assessment - Working Group One
Summary for Policy Makers
http://www.climatechange2013.org/images/uploads/WGIAR5-SPM_Approved27Sep2013.pdf

"Limiting the warming caused by anthropogenic CO2 emissions alone with a probability of >33%, >50%, and >66% to less than 2°C since the period 1861–1880, will require cumulative CO2 emissions from all anthropogenic sources to stay between 0 and about 1560 Giga-tonnes Carbon [Gt C] 0 and about 1210 Gt C, and 0 and about 1000 Gt C since that period respectively.

These upper amounts are reduced to about 880 Gt C, 840 Gt C, and 800 Gt C respectively, when accounting for non-CO2 forcings as in RCP 2.6. An amount of 531 [446 to 616] Gt C, was already emitted by 2011."

All these results analysed using CBAT - see last page & here: -
http://www.gci.org.uk/CBAT1_i-5a.html

IPCC Fifth Assessment - Working Group Three
Draft Policy Makers Summary, to be considered April 2014

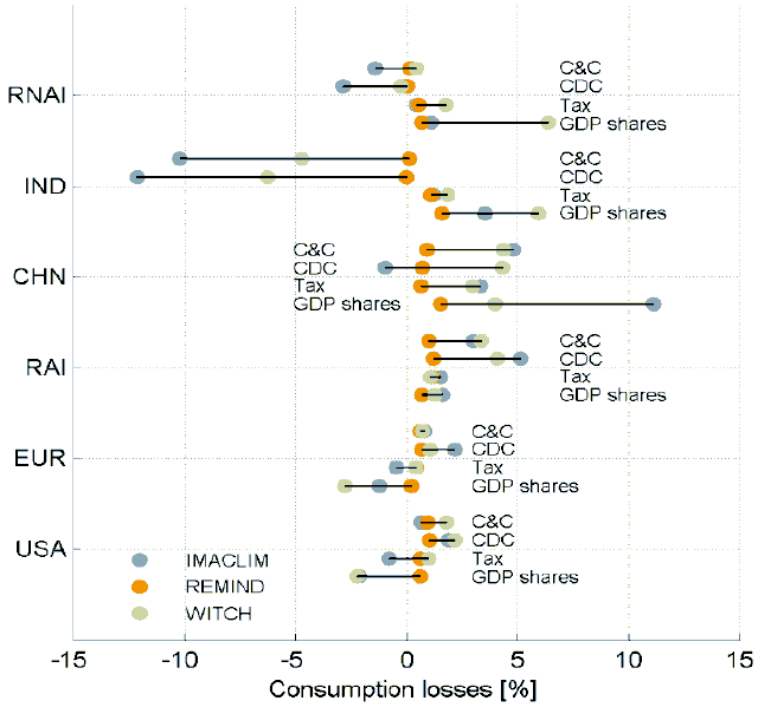


Figure SPM.10. Policy costs for key regions and different allocation principles (C&C=Contraction and Convergence, CDC=Common but differentiated Convergence, Tax=Uniform Carbon Tax, GDP Shares= equal emission right of emission per unit of GDP) from the RECIPE project for a 450 ppm CO_2 stabilization target. [Figure 6.30]

Based on RECIPE which is based on C&C [see above].
http://www.gci.org.uk/Documents/WGIII_AR5_Draft2_SPM.pdf

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Joke Waller Hunter - UNFCCC Executive Secretary

Joke Waller Hunter
UNFCCC Executive Secretary 2002 - 2005

*"Achieving the goal of the United Nations Framework Convention on Climate Change inevitably requires **'Contraction and Convergence'.**"*

The late Joke Waller Hunter -
UNFCCC Executive Secretary 2002 - 2005; COP-9 in Milan 2003

Professor Ross Garnaut - Author Garnaut Climate Review

Professor Ross Garnaut
Author Australian Government Climate Change Review

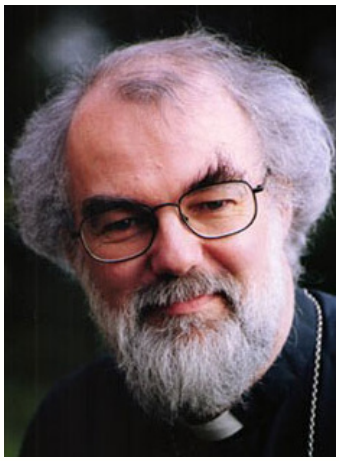
*"Over the last 20 years, Aubrey Meyer's sustained work through the Global Commons Institute with the **'Contraction and Convergence'** or C&C concept and campaign, has created a global standard that is now widely recognized is an outstanding and essential contribution to the global debate on what to do avoid dangerous rates of climate change.*

This is remarkable and reflects the integrity of the argument where C&C is mathematically rooted in the science of climate change and marries the limit to future human emissions that avoids dangerous rates of climate change to the politically compelling requirement of equal shares in the use of the atmosphere subject to that limit.

It embodies the economic political reality, that adjustment to equal per capita emissions entitlements will take time. It is a rational, flexible and transparent concept that holds out the best hope of all urgent proposals that might form a basis of an environmentally and economically rational global agreement on climate change mitigation.

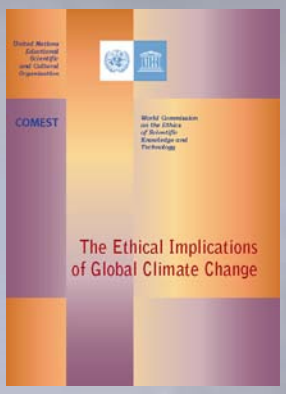
*The **'Contraction and Convergence'** idea was at the core of the proposals for international agreement that are part of the Garnaut Climate Change Review, commissioned by and presented to the Australian Prime Minister and all State Premiers."*

Rowan Williams - Former Archbishop of Canterbury



Rowan Williams
Former Archbishop of Canterbury

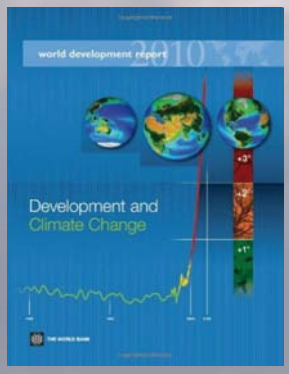
*"The Global Commons Institute, based in London, has in recent years been advancing a very sophisticated model for pushing us back towards some serious engagement with this matter of equality, through its proposed programme of **'Contraction and Convergence'.** This seeks to achieve fairly rapid and substantial reductions in greenhouse gas emissions - but to do so in a way that foregrounds questions of equity between rich and poor nations. At the moment, rates of emission are fantastically uneven across the globe. In the first 48 hours of 2004, an average American family would have been responsible for as much in the way of emissions as an average Tanzanian family over the entire year. So what is proposed is that each nation is treated as having the same limited 'entitlement to pollute' - an agreed level of carbon emission, compatible with goals for reducing and stabilizing overall atmospheric pollution. Those who think **'Contraction and Convergence'** is Utopian, simply haven't looked honestly at the alternatives."*



*"The principle of **"Contraction & Convergence"** refers to the emission of gases contributing to the greenhouse effect. A fair and pragmatic approach, it is argued, would be to move gradually towards quotas that would not be indexed on GDP, as is the case in the Kyoto Protocol, but rather on population, while gradually reducing the permitted total towards the 60% reduction commended by the Intergovernmental Panel on Climate Change (IPCC). Such a principle may be seen as a consequence of both the principles of environmental justice and the principles of earth as global commons. The particular problem whether future emissions allocations should be based on a per capita basis, as the so-called "contraction and convergence" proposal suggests, or on a country basis, might be seen in a different light if humanitarian aid were internationally organized on a basis of each country's ability to pay. The greater duty of rich countries to contribute to such aid might be politically easier to accept than more stringent emission limits imposed on "more polluting" and "past polluting" countries than LDCs (least developed countries), which would also cost "richer" countries more."*

***"Contraction & Convergence"** (C&C) is the science-based, global climate policy framework proposed to the United Nations since 1990 by the Global Commons Institute (GCI).* http://www.gci.org.uk/briefings/ICE.pdf

UNESCO - The Ethical Implications of Climate Change: A Report by the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) http://www.gci.org.uk/Documents/UNESCO_COMEST_.pdf



*The **'Contraction and Convergence'** approach assigns every human being an equal entitlement to greenhouse gas emissions. All countries would thus move toward the same per capita emissions. Total emissions would contract over time, and per capita emissions would converge on a single figure. The actual convergence value, the path toward convergence, and the time when it is to be reached would all be negotiable. **"Contraction & Convergence"** (C&C) is the science-based, global climate policy framework proposed to the United Nations since 1990 by the Global Commons Institute (GCI).*
http://www.gci.org.uk/briefings/ICE.pdf

WORLD BANK Development Report 2010
http://siteresources.worldbank.org/INTWDR2010/Resources/5287678-1226014527953/WDR10-Full-Text.pdf

*Having reviewed the trends in the use of natural resources and accompanying undesirable environ-mental impacts in the first section of Chapter 2, the last section of that chapter considers possible future implications by presenting three brief scenarios: (1) business as usual (leading to a tripling of global annual resource extraction by 2050); (2) moderate '**Contraction and Convergence'** (requiring industrialized countries to reduce their per capita resource consumption by half the rate for the year 2000); and (3) tough '**Contraction and Convergence'** (aimed at keeping global resource extraction at its current levels). None of these scenarios will lead to actual global reductions in resource use, but all indicate that substantial reductions in the resource requirements of economic activities will be necessary if the growing world population can expect to live under conditions of sustainable resource management. The key message of the tough scenario is that despite population growth to roughly 9 billion people, the pressure on the environment would remain roughly the same as it is now. The emissions correspond approximately to the lowest range of scenario B1 of the IPCC SRES, but are still 20% above the roughly 5.5 GtC/yr advocated by the Global Commons Institute for contraction and convergence in emissions (GCI, 2003).*

UNEP - Decoupling Natural Resource Use and Environmental Impacts from Economic Growth Dr. Ernst Ulrich von Weizsäcker, Dr. Ashok Khosla, Co-Chairs, International Resource Panel (IRP)
http://www.unep.org/resourcepanel/decoupling/files/pdf/Decoupling_Report_English.pdf

"The few studies that are now beginning to assess the health consequences of decisions aiming to mitigate or adapt to climate change use very different analytical methods and assumptions, even for very similar challenges. There is a need to develop more generic guidance on conceptual frameworks and methods in order to improve comparability, and assist decision-makers to achieve the greatest health "co-benefits", and avoid harm.

*This should cover the full range of potential decisions, from the "macro" level for example global **'Contraction & Convergence'** in carbon dioxide emissions; carbon pricing policy and incentives), to more local and sector specific decisions (city-level policies to promote public transport, or protect a natural watershed)."*

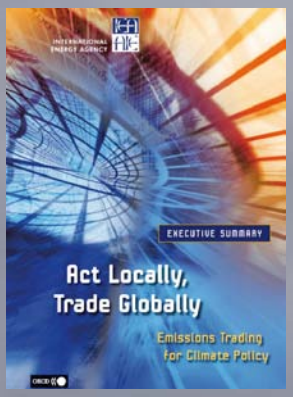
Protecting Health from Climate Change
Global research priorities
WORLD HEALTH ORGANIZATION 2009
http://whqlibdoc.who.int/publications/2009/9789241598187_eng.pdf

'Contraction and convergence' - sustainability with equity.
UNDP - Human Development Report 2008

Our pathway is rooted in a commitment to achieve a practical goal: namely, the avoidance of dangerous climate change. The route taken requires a process of overall contraction in greenhouse gas flows and convergence in per capita emissions.

***'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).* http://www.gci.org.uk/briefings/ICE.pdf

The term ***'Contraction and Convergence'*** is a registered to the Global Commons Institute (GCI); http://www.gci.org.uk/



"Some proposals compensate the potential burden on developing nations with generous emissions allocation, whether as a simple strategy to obtain developing countries support for the regime or in a realisation of the global equity principle borrowed from social justice.

*A famous such proposal is **'Contraction and Convergence'** developed by Aubrey Meyer.*

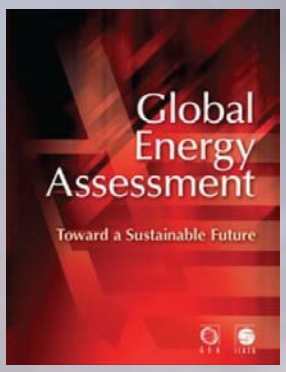
Act Locally Trade Globally; Emissions Trading for Climate Policy
Organisation for Economic Cooperation and Development IEA
http://books.google.com/books?id=Mpba74EPLZAC&pg=PA174&dq=contraction+and+convergence&hl=en&ei=KQfcTd3rDIyq8APUhoUD&sa=X&oi=book_result&ct=result&resnum=3&ved=0CDIQ6AEwAji-AQ#v=onepage&q=contraction%20and%20convergence&f=false

"The scenarios all assume a burden sharing regime based on "Contraction and Convergence": global emissions contract over time according to the global pathway, and regional emission allowances (i.e. regional permit allocation) as a share of the global budget converge from shares in current emission levels to equal per-capita emissions by 2050 (see also simulation 2 below). Note that in the 450 Delayed Action scenario the burden sharing regime only applies after 2020."

***"Contraction and Convergence"** (C&C) is the science-based, global climate policy framework proposed to the UN since 1990 by the Global Commons Institute (GCI):* - http://www.gci.org.uk/briefings/ICE.pdf
OECD Environmental Outlook to 2050

*GLOBE International adopted the **"Contraction and Convergence"** analysis in May 1977. Since then, I and my colleagues have campaigned for its acceptance. This pamphlet is a record of those efforts and provides a short summary of the work of the Global Commons Institute (GCI) in this field.*

I pay tribute to all the GLOBE parliamentarians who have fought so hard for this cause and particularly to the work of Aubrey Meyer & the GCI team on whose brilliant analysis the campaign is based.
Tom Spencer Former Director GLOBE International
Chair European Parliament Foreign Affairs Committee
http://www.gci.org.uk/Documents/globe_.pdf

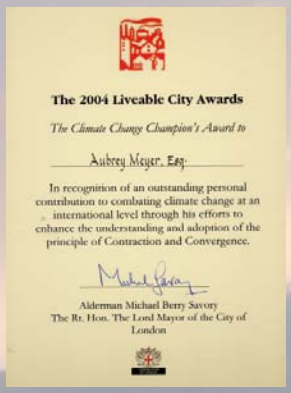


Transfers under Contraction & Convergence Assumptions IIASA

*This section explores the implications of an illustrative burden-sharing scheme for the allocation of future emissions rights and applies it to the GEA pathways. This burden-sharing scheme has been introduced in the literature as '**Contraction and Convergence'** by the Global Commons Institute and was subsequently used in many scientific analysis.*

In essence, under such a scheme, all regions need to converge to a common per capita emissions entitlement by a specified date. For regions with per capita emissions above the world average, this implies reductions (hence the term "contraction") until the convergence criterion is fulfilled, but starting from very different initial conditions. For regions with per capita emissions below the world average, emissions can rise initially until they reach the world average. Thereafter, these regions also need to contract to the specified convergence level. The resulting emissions projections from the allocation scheme differ from the original GEA pathways, which assume that reductions take place where they are most cost-effective.
Global Energy Assessment - Towards a Sustainable Future
Nebojsa Nakicenovic et al IIASA
http://www.iiasa.ac.at/web/home/research/Flagship-Projects/Global-Energy-Assessment/Home-GEA.en.html

*Given that negotiations on future commiment periods have not yet begun, estimates of potential financial transfers generated by emissions trading can only be hypothetical. WBGU has proposed committing all countries to limit their emissions and participate in emissions trading in the future in line with the **"Contraction and Convergence"** approach (GCI, 2000, WGBU 2004). According to model calculations by WBGU, emissions trading would result in cumulative transfer payments of US$8,000,000 million to 12,000,000 million from OECD and transition countries to developing countries in the period up to 2100. This corresponds to annual average transfers of USS84,000 million to 128,000 million — whereby actual annual transfers are subject to considerable variation over time. These payments would make a significant contribution towards meeting the costs of emission reductions in developing countries (WBGU, 2003). For the upcoming negotiations WBGU recommends pushing for a rapid integration of all countries in a regime based on **"Contraction and Convergence"** to help mobilize the necessary funds in this way.*
World in Transition WBGU [2013]
http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/hauptgutachten/jg2004/wbgu_jg2004_engl.pdf


The 2004 Liveable City Awards

The Climate Change Champion's Award to

Aubrey Meyer, Esq.

In recognition of an outstanding personal contribution to combating climate change at an international level through his efforts to enhance the understanding and adoption of the principle of Contraction and Convergence.

Alderman Michael Berry Savory
The Rt. Hon. The Lord Mayor of the City of London

City of London Life-Time's Achievement Award [2005]

*"From the worlds of business, academia, politics and activism, Aubrey Meyer has made the greatest contribution to the understanding and combating of climate change having led strategic debate or policy formation. In recognition of an outstanding personal contribution to combating climate change at an international level through his efforts to enhance the understanding and adoption of the principle of **Contraction and Convergence.**"*
http://www.gci.org.uk/Documents/City_of_London_Award_Booklet_Single_Sides__.pdf

Contraction and Convergence (C&C)
Climate Justice without vengeance

Contraction & Convergence or 'C&C' ® ©

These pages, the support page, the awards page and the publications page on the GCI website, give some evidence supporting claims that C&C is now the most widely cited and arguably the most widely supported model in the UN negotiations on climate change and the debates these have given rise to.

*"Stabilization inevitably requires **'Contraction and Convergence'**."*
In others words, 'UNFCCC-Compliance' is dependent on C&C.
Joke Waller Hunter, UNFCCC Executive Secretary
COP-9 Milan 2004

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

ZIMBABWE: [for the Africa Group]

*" . . . . . 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:

"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: Jonathan 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."*
http://www.gci.org.uk/COP3_Transcript.pdf

WMO INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE UNEP

DEVELOPMENT, SUSTAINABILITY AND EQUITY

PROCEEDINGS OF THE SECOND IPCC EXPERT MEETING ON DES

Havana, Cuba 23-25 February 2000

Supporting material prepared for consideration by the Intergovernmental Panel on Climate Change. This supporting material has not been subject to the formal IPCC review process.

Edited by

Ramon Picks, Rob Swart, Neil Leary and Flo Osmond

Compiled by
Ramon Picks

The activity was held in support of the development of IPCC's Third Assessment Report, pursuant to a decision of the relevant Working Groups II and III of the Panel but such decision does not imply Working Group or Panel endorsement or approval of the proceedings; or any recommendations or conclusions contained therein.

Raul Estrada - Chairman Kyoto Protocol Negotiations
Intergovernmental Panel on Climate Change [IPCC]
Contraction and Convergence [C&C] www.gci.org.uk

*"Long before the end of the Framework Convention negotiation, the Global Commons Institute (GCI) has presented a proposal on **'Contraction and Convergence'** aimed to reach equality in emissions per capita. We all in this room know the GCI model where contraction is achieved after all governments, for precautionary reasons, collectively agree to be bound by a target of global GHG emissions, making it possible to calculate the diminishing amount of greenhouse gases that the world can release each year in the coming century, subject to annual scientific and political review.*

The convergence part of the proposal means that each year's global emissions budget gets shared out among the nations of the world so that every country converges on the same allocation per inhabitant by an agreed date. Countries unable to manage within their shares would, be able to buy the unused parts of the allocations of other countries. The entitlement of rights transferred in this trading is legitimised by the per inhabitant criteria. Level of contraction and timing of convergence should be negotiated on the basis of the precautionary principle. Suggestions for emission reductions are well known and convergence should be achieved at medium term to satisfy legitimacy. I have read that the Chairman of IPCC's WG I, Sir John Houghton, has said that this is the "logical approach. Analysis of ***'Contraction and Convergence'*** *in TAR is a must if equity is going to be taken into account in the report."*

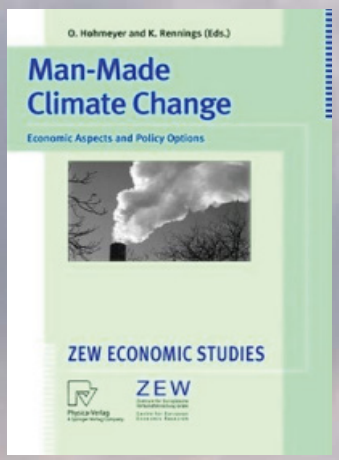
Proceedings 2nd IPCC Expert Meeting on Development, Sustainability and Equity Havana, Cuba 23-25 February 2000

http://www.gci.org.uk/Documents/des-2nd-ipcc-expert-meeting.pdf

"I think that Aubrey is a good gentleman because he has really been on this issue for years – donkey's years – and he's not giving up. He has the stamina. I think if all of us were like Aubrey we would have achieved very high levels. Unfortunately not many of us have been that strong."

Joshua Wairoto, Deputy Director Met Office Kenya

http://candcfoundation.org/pages/endorsements.html#

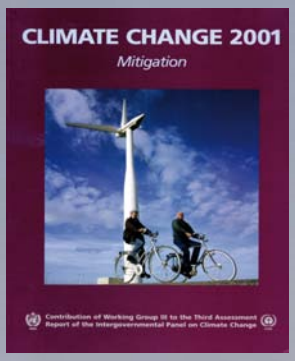


"The Kyoto Protocol, completed in the early hours of December 11th 1997, at present is no more than a potential breakthrough in the development of effective global policy for the control of atmospheric concentrations of greenhouse gases and the mitigation of human-induced global climate changes. The core issue of the negotiations has been deferred until COP4 in November 1998. The industrial countries have negotiated a compromise that subject to ratification will legally bind them to commitments beyond those in the UNFCCC. But, the ratification of the Protocol by the US still remains contingent on achieving the "meaningful participation" of "key" developing countries in the abatement regime and the multilateral acceptance of international emissions trading. This is a struggle to define property rights. These key developing countries include India and China and they have made it clear that their acceptance of trading is contingent on the achievement of "equitable allocations" of emissions entitlements based on achieving equal per capita entitlements globally.

*COP issued instructions to the technical bodies attached to the UNFCCC to "define the relevant principles, modalities, rules and guidelines for emissions trading" in time for COP-4 in November 1998 in Buenos Aires. GCI argues that "Contraction and Convergence" is the approach that can break through this deadlock and welcomes the fact that major parties and interest groups in this dispute have already acknowledged that they take this approach seriously and that it has growing support throughout the world. As a leading economics commentator Peter Jay has noted, "… unless there is some recognition that eventually no one group of human being can expect to have an internationally recognised right to consume more of the world's limited capacity to absorb greenhouse gas emissions than any other group, it is hard to see how a globally enforceable policy can be built by consent." And in the words of the President of GLOBE International "****'Contraction and Convergence'*** *is not simply the right way to solve the problem, it is the only way to solve the problem."*

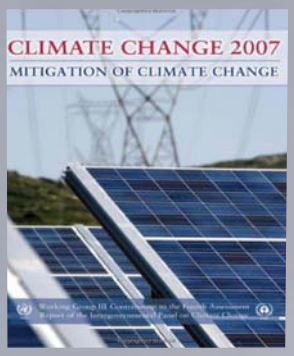
The Kyoto Protocol and the Emergence of "Contraction and Convergence" as a framework for an international political solution to greenhouse gas emissions abatement. A Meyer 1997

http://www.gci.org.uk/zew.pdf



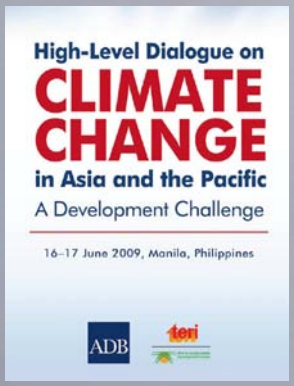
*"Rights-based, that is based on equal (or otherwise defensible) rights to the global commons. A formulation that carries this insight to its logical conclusion is that of **'Contraction and Convergence'** (Meyer, 1999), whereby net aggregate emissions decline to zero, and per capita emissions of Annex I and non-Annex I countries reach precise equality."*

IPCC Third Assessment [Cambridge University Press]
Working Group 3 Chapter 1
http://www.grida.no/publications/other/ipcc_tar/



*"A number of scenario studies have been conducted for various countries within Europe. These studies explore a wide range of emission caps, taking into account local circumstances and potentials for technology implementation. Many of these studies have used specific burden-sharing allocation schemes, such as the **'Contraction and Convergence'** (C&C) approach (GCI, 2005) for calculating the allocation of worldwide emissions to estimate national emissions ceilings."*

IPCC Fourth Assessment [Cambridge University Press]
Working Group 3 Chapter 3
http://www.ipcc.ch/publications_and_data/ar4/wg3/en/contents.html



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

"High Level Dialogue on Climate Change"on C&C

Ursula Schäefer-Preuss - Vice President of ADB
Haruhiko Kuroda - President and Chair ADB Board
Ban Ki-moon - Secretary General of the United Nations
Rajendra Pachauri - Director of TERI, Chair IPCC
Yvo de Boer - Former Executive Secretary UNFCCC
Gloria Macapagal Arroyo - President Philippine
Zhou Dadi - Chief national energy strategy, People's Republic of China.

Full Signatory List
http://www.gci.org.uk/Documents/ADB_Full_Signatory_List_.pdf

Per capita CO2 emissions meet in the middle.

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

Angela Merkel President of Germany 2008
http://www.bundeskanzlerin.de/Content/EN/Artikel/2007/08/2007-08-30-bundeskanzlerin-in-japan__en.html

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

Nicholas Sarkozy President of France 2008
http://www.ambafrance-uk.org/Franco-German-Council-of-Ministers,10729.html

*"The UK-based Global Commons Institute has taken the lead in promoting contraction and convergence, and has developed a computer model which specifies emission allocations under a range of scenarios. The concept has been supported by several national governments and legislators. Some developed nations are very wary of it because it implies drastic reductions in their emissions, but at least one minister in a European government has supported it. Commentators on climate diplomacy have identified **'Contraction and Convergence'** as a leading contender among the various proposals for allocating emission quotas to nations in the long term."*

"Energy - The Changing Climate" [2000]
The Royal Commission on Environmental Pollution

http://www.gci.org.uk/chp4.pdf

*"I fully agree that the GCI's **'Contraction and Convergence'** framework provides a realistic & equitable plan for global action. That is why C&C was a key part of the Liberal Democrat's manifesto and why I continue to believe the principle of C&C will be central to our long-term strategy on climate change."*

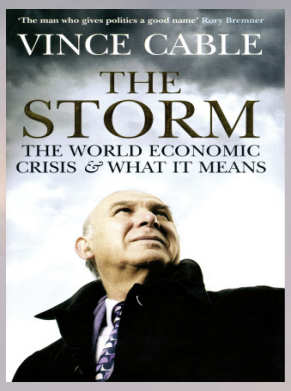
Nick Clegg Lib Dem MP [2010]
UK Deputy Prime Minister

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

*"**'Contraction and Convergence'** - You know I agree, in the long term there is no other way to solve this problem."*

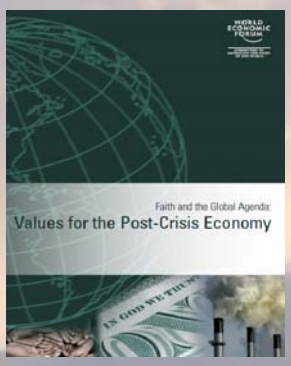
Chris Huhne Lib Dem MP [2010]
UK Secretary of State Energy & Climate

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



*"Man-made climate change. Little progress can be made without fundamental agreement on the principle of **'Contraction and Convergence'** as between high-income countries, which have generated the lion's share of the stock of carbon in the atmosphere, and the big low-income countries, which will contribute the greatest future emissions. Without China and India as full and equal partners in the process, it will fail."*

Vince Cable Lib Dem MP [2009] - UK Secretary of State Business The Storm: The World Economic Crisis & What It Means
http://www.amazon.com/Storm-World-Economic-Crisis-Means/dp/1848870582/ref=sr_1_1?s=books&ie=UTF8&qid=1286134220&sr=1-1



*Along with Human Well-Being and Economic Decision-Making this we have to ask about "green taxes" that will check environmental irresponsibility and build up resources to address the ecological crises that menace us. The **'Contraction and Convergence'** proposals are among the best known and most structurally simple of these, and it would be a major step to hear some endorsement of them from a body such as this.*

Faith & the Global Agenda: Values for the Post-Crisis Economy
World Economic Forum Geneva, Switzerland 2010
https://members.weforum.org/pdf/faith/valuesreport.pdf

*"A good first step would be to pressure Climate and Energy Minister Chris Huhne to stand by Liberal Democrat manifesto pledges to push for an ambitious international climate treaty. Such a treaty should be based on a globally fair emission reduction model like **'Contraction and Convergence'**, whereby emission targets are set on the assumption that everyone globally is entitled to the same level of per capita emissions. A model based on contraction and convergence should be the framework that we organise around, in advance of the Cancun climate meetings later this year. At the same time, in order to ensure we fulfil our part of the C&C contract domestically, we should urgently revisit the idea of carbon quotas. Back in December 2006, when David Miliband was Environment Secretary, he briefly took up the idea of Domestic Tradeable Quotas."*

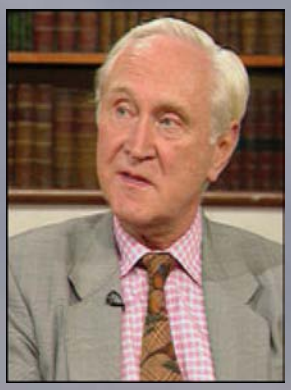
Caroline Lucas Leader of the Green Party [2010]
Britain's first Green MP
http://www.litmustest.org/documents/LITMUS_2010.pdf

*"Climate change is likely to impose massive economic costs. The case for being prepared to spend huge resources to limit it is clear," says Turner, arguing that the cost will be repaid many times over by the avoidance of disaster. In any case, "the developed world does not have the moral right to increase the risk of flooding in Bangladesh", and, he adds acidly, "European executives worried about the cost of action should perhaps consider it the necessary price for preserving at least some skiing in the Alps. Long term the only sound strategy is that of ''**Contraction & Convergence'** cutting greenhouse emissions to the point where they are shared equally, worldwide, on a per capita basis."*

Lord Adair Turner - Chairman UK Climate Change Committee
Interview in Green Futures
http://www.forumforthefuture.org/greenfutures/articles/60905

Adair Turner said the UK Climate Act as C&C in evidence to the EAC and DECC select committees in 2009 and converging to equal per capita entitlements globally is the only option that is, doable and fair for organising and sharing the full-term emissions-contraction-event to bring us to UNFCCC-compliance. He agreed,"if, for reasons of urgency the rate of global contraction has to be accelerated, for reasons of equity the rate of international convergence has to be accelerated relative to that."

Evidence to Climate and Energy Committee [2010]
http://www.publications.parliament.uk/pa/cm200809/cmselect/cmenergy/309/09030402.htm



"Aubrey Meyer has done an amazing job and shown extraordinary persistence and ingenuity in working out a scheme of this kind. I very much admire him for it. Above all he's laid out an intellectual and legal framework which is what you need if you're going to set global arrangements in place."

Sir Crispin Tickell, former UK Ambassador to the UN [2007]
Director of the Policy Foresight Programme
James Martin Institute Oxford University
http://www.candcfoundation.com/pages/endorsements.html#

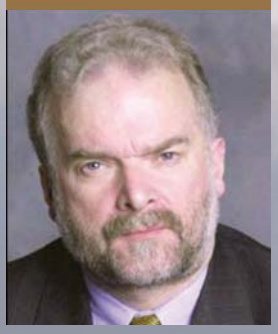
*GLOBE International adopted the **"Contraction and Convergence"** analysis in May 1977. Since then, I and my colleagues have campaigned for its acceptance. This pamphlet is a record of those efforts and provides a short summary of the work of the Global Commons Institute (GCI) in this field. I would like to pay tribute to all the GLOBE parliamentarians who have foughtso hard for this cause and particularly to the work of Aubrey Meyer and the GCI team on whose brilliant analysis the campaign is based.*

Tom Spencer Former Director GLOBE International
Chair European Parliament Foreign Affairs Committee
http://www.gci.org.uk/Documents/globe_.pdf

*"Talking about why it is important that everybody in the world gets behind **'Contraction and Convergence'**. I don't say things like this lightly. I am not really one for hyperbole or strange religious motivations. What I find is important is that my whole life experience has taught me that things that have proportionality to them, that have melody to them, that are profoundly simple, usually have something right going for them. And secondly that you can judge an idea by the quality of the enemies it gets and there have been some profound enemies for C&C, which is based on an understanding that perhaps there is something of the night about it there is something not properly scientific. Well actually it is, it is totally scientific and more important than that it has blended something the age of reason was never able totally to do which is blending the empiricism of it with 'soul'; the quite obvious rightness of a system that apportions to every person on earth a carbon contract that it theirs to dispose of over a period of time to create a parity that enables us to live one with another in a way that enables us to be connected to the earth itself in terms of being able to make us live with the grain of nature and not apart from it. I have yet to hear anyone provide an argument that makes it ethically unsound, however uncomfortable they may feel about it. I have yet to find someone who can scientifically disprove the work of Aubrey Meyer."*

Tim Smit Chief Executive and Co-Founder of the EDEN Project

http://candcfoundation.org/pages/indextimsmit.html



*"Let us recognize that a global deal has to be fully inclusive, demonstrate how we calculate burden-sharing and be equitable as no-one will accept a deal that builds in their disadvantage. That framework is **'Contraction and Convergence'**,*

Too Little, Too Late: The Politics of Climate Change

Colin Challen - Former Chair UK HoC All Party [2008] Parliamentary Group on Climate Change

http://www.amazon.com/Too-Little-Late-Politics-Climate/dp/0956037003/ref=sr_1_1?s=books&ie=UTF8&qid=1285911902&sr=1-1

*"Several ideas derived from **'Contraction and Convergence'** [C&C] have surfaced since Kyoto with ideas that can be perhaps in various ways incorporated into C&C. However, there is an overwhelming need for an over-arching UNFCCC-compliant Framework that enables the globally competing interests of the over-consuming and the under-consuming to be reconciled with each other and with the objective of the UNFCCC in a non-random manner. We feel that C&C is the veteran and indeed the apex example of this and urge you to consider our request. At Kyoto 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." The adversarial reasons for their withdrawal then were in play again at COP-15: http://www.gci.org.uk/public/COP_15_C&C.swf*

C&C answers this in a unifying and constitutional way and the need for this answer becomes increasingly critical."

Tim Yeo MP [2010]
Chairman Commons Energy & Climate Change Committee

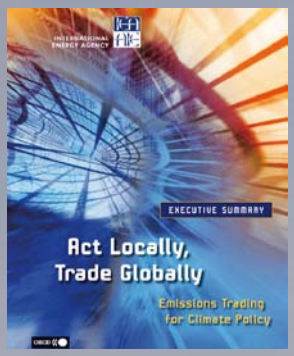
http://www.gci.org.uk/politics.html

UNFCCC-compliant Global Climate Change Framework

*We all face an increasingly urgent situation with the threat of runaway rates of climate change occurring and the persistent failure to come to terms internationally to deal with this. There is an international need to establish a UNFCCC-compliant Global Climate Change Framework to redress this threat as soon as possible. **'Contraction and Convergence'** is a prime example of this. It is a rational formulation for reconciliation of 'Climate Justice without Vengeance'.*

Sir Martin Rees letter to Secretary of State -with 200 others

ttp://www.gci.org.uk/politics.html



"Some proposals compensate the potential burden on developing nations with generous emissions allocation, whether as a simple strategy to obtain developing countries support for the regime or in a realisation of the global equity principle borrowed from social justice.

*A famous such proposal is **'Contraction and Convergence'** developed by Aubrey Meyer.*

Act Locally Trade Globally; Emissions Trading for Climate Policy
Organisation for Economic Cooperation and Development IEA

http://books.google.com/books?id=Mpba74EPLZAC&pg=PA174&dq=contraction+and+convergence&hl=en&ei=KQfcTd3rDIyq8APUhoUD&sa=X&oi=book_result&ct=result&resnum=3&ved=0CDIQ6AEwAji-AQ#v=onepage&q=contraction%20and%20convergence&f=false

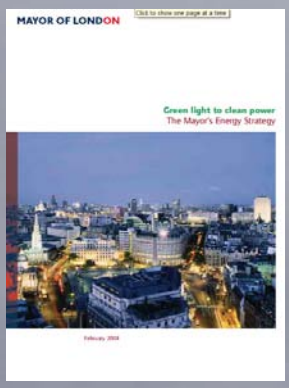
Contraction and Convergence is a beautiful model."
David Miliband at the Green Alliance

*"One of my first parliamentary questions as a backbencher was about **'Contraction and Convergence'** [C&C - the proposition that regions with high per capita carbon emissions must contract them progressively to converge with those of current low emitters at a level that is globally sustainable]. Any international agreement is going to have those principles at its heart; shared responsibility, equitable burden-sharing."*

David Miliband in Green Futures
http://www.forumforthefuture.org/greenfutures/articles/602814

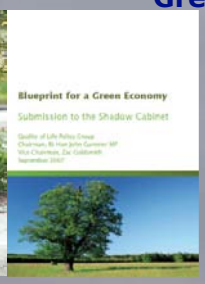
*"There is an attractive justice element to the **'Contraction and Convergence'**."*

Ed Miliband - HoC Environmental Audit Committee 27 10 2009
http://www.parliament.the-stationery-office.co.uk/pa/cm200910/cmselect/cmenvaud/228/9102706.htm



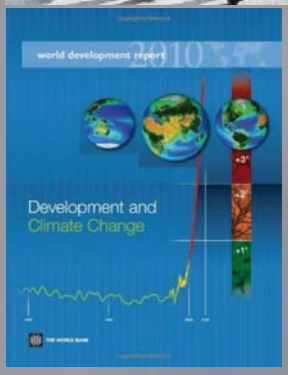
***"Contraction and Convergence"** is a simple approach to distributing the total greenhouse gas emission reductions required internationally, between various countries or groups of countries. The approach is based on two principles: 1 there is an upper limit to acceptable global atmospheric greenhouse gas concentration, beyond which the damage from climate change would not be acceptable 2 the atmosphere is a global commons, so that as individuals we all have equal rights to emit greenhouse gases. **'Contraction and Convergence'** is arguably the most widely supported, equitable, global approach to tackling climate change and the Mayor supports the principle of contraction and convergence. The contraction and convergence proposal was developed by the Global Commons Institute, London. Details of its origins, methodology, and support are available online at http://www.gci.org.uk*

Green light to clean power - The Mayor's Energy Strategy
http://static.london.gov.uk/mayor/strategies/energy/docs/energy_strategy04.pdf



*"There is no shortage of plausible frameworks for a long term global deal on the table, not least the intellectually and morally coherent principle of **Contraction and Convergence.**"*

UK Conservatives Quality of Life Challenge
"Blueprint for a Green Economy" on C&C
Jon Gummer David Cameron Zac Goldsmith
http://www.gci.org.uk/Documents/blueprintforagreeneconomy_.pdf



*The **'Contraction and Convergence'** approach assigns every human being an equal entitlement to greenhouse gas emissions. All countries would thus move toward the same per capita emissions. Total emissions would contract over time, and per capita emissions would converge on a single figure. The actual convergence value, the path toward convergence, and the time when it is to be reached would all be negotiable.*

World Bank Development Report 2010
http://siteresources.worldbank.org/INTWDR2010/Resources/5287678-1226014527953/WDR10-Full-Text.pdf

"The few studies that are now beginning to assess the health consequences of decisions aiming to mitigate or adapt to climate change use very different analytical methods and assumptions, even for very similar challenges. There is a need to develop more generic guidance on conceptual frameworks and methods in order to improve comparability, and assist decision-makers to achieve the greatest health "co-benefits", and avoid harm. This should cover the full range of potential decisions, from the "macro" level for example global ***'Contraction & Convergence'*** *in carbon dioxide emissions; carbon pricing policy and incentives), to more local and sector specific decisions (city-level policies to promote public transport, or protect a natural watershed)."*

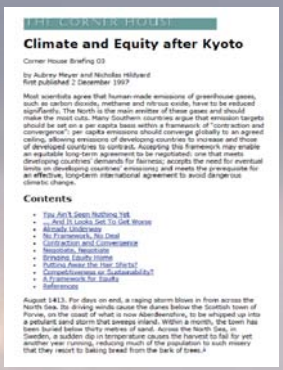
PROTECTING HEALTH FROM CLIMATE CHANGE Global research priorities WORLD HEALTH ORGANISATION 2009
http://whqlibdoc.who.int/publications/2009/9789241598187_eng.pdf

"When one looks at the kinds of reductions that would be required globally, the only means for doing so is to ensure that there's ***'Contraction and Convergence'*** *and I think there's growing acceptance of this reality. I don't see how else we might be able to fit into the overall budget for emissions for the world as a whole by 2050. We need to start putting this principle into practice as early as possible."*

Rajendra Pachauri - Global Humanitarian Forum 2008
Chairman Intergovernmental Panel on Climate Change
http://www.climateconsent.org/flash2/pauchari.html

'Contraction and Convergence' *is the major proposal based on egalitarianism. Developed by the Global Commons Institute, it proposes that all countries should move, over a period of time, towards equal per capita emissions, with total emission levels contracting and per capita emissions converging at a safe level. The model is flexible as to the time-frame and final emission level and potentially allows national circumstances to be taken into account.*

Climate Policy - Elsevier
http://books.google.com/books?id=XTY9AQAAIAAJ&q=contraction+and+convergence&dq=contraction+and+convergence&hl=en&ei=kcDcTeTyAoSk-gbf7oG7Dw&sa=X&oi=book_result&ct=book-thumbnail&resnum=9&ved=0CEsQ6wEwCDjUAg



Most scientists agree that human-made emissions of greenhouse gases, such as carbon dioxide, methane and nitrous oxide, have to be reduced signifiantly. The North is the main emitter of these gases and should make the most cuts. Many Southern countries argue that emission targets should be set on a per capita basis within a framework of ***'Contraction & Convergence'****. Accepting this framework may enable an equitable long-term agreement to be negotiated, meeting developing countries' demands for fairness, the need for eventual limits on developing countries' emissions and the prerequisite for an effective, long-term international agreement to avoid dangerous climatic change.*

Climate and Equity after Kyoto - Corner House Briefing 03
Aubrey Meyer & Nicholas Hildyard; first published 02 12 1997
http://www.gci.org.uk/Documents/Climate&_Equity_after_Kyoto.pdf

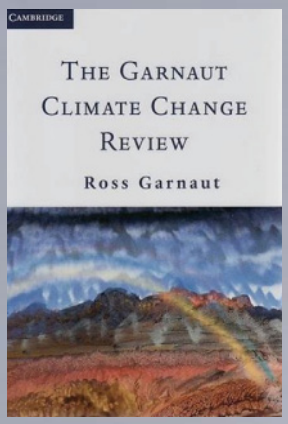
"As with all great ideas, ***'Contraction and Convergence'*** *is deceptively simple, addresses the root causes of the problem, and is recognized as a grave threat to those vested interests who fear the climate change problem's successful resolution because of the fundamental changes it will wrought on our economic status quo. The sustained effort of GCI over 20 years is a testimony to Aubrey's integrity, commitment, and resolve. The logic and calculus of C&C is inescapable once an objective analysis is undertaken. For years, it was foolishly dismissed as impractical! Somewhat ironically, those who now view the problem with a clear head are increasingly accepting that C&C presents the only politically acceptable solution to the foundational question of how the permissible emissions can be distributed amongst the people of Earth."*

Prof Brendan Mackey and Song Li- Winning the Struggle Against Global Warming; Brendan Mackey
http://www.earthcharterinaction.org/content/attachments/10/MackeyLi_ClimateReport2007.pdf

Protecting Life from Climate Change - The need for synergies between policy, ethics, and education - David Chalmers
http://www.earthcharterinaction.org/content/attachments/10/protecting_Life_From_Climate_Change-DChalmers-08pdf1.pdf

*"Many congratulations on the endorsement from the UK Deputy Prime Minister & on your tremendous commitment sustained over many years to an equitable approach to climate action. Politically **'Contraction and Convergence'** is the only credible approach which could be widely accepted."*

Professor Sir Andy Haines University College London
http://candcfoundation.org/pages/endorsements.html#



*"A precise version of the per capita approach, often referred to as '**Contraction and Convergence'** (GCI 2000) has figured in the international debate for some time. It has been promoted by India and has been discussed favourably in Germany and the United Kingdom (German Advisory Council on Global Change 2003; UK Royal Commission on Environmental Pollution 2000). Recent reports have shown increasing support for variations on this general approach, see for example, Stern (2008) and the Commission on Growth and Development (2008). The **"Contraction and Convergence"** approach addresses the central international equity issue simply and transparently. Slower convergence (a later date at which per capita emissions entitlements are equalised) favours emitters that are above the global per capita average at the starting point. Faster convergence gives more emissions rights to low per capita emitters. The convergence date is the main equity lever in such a scheme."*

"Garnaut Review" - C&C Chapter
http://www.garnautreview.org.au/pdf/Garnaut_Chapter9.pdf

THE AUSTRALIA INSTITUTE

Comprehensive emissions per capita for industrialised countries

Hal Turton and Clive Hamilton
The Australia Institute

September 2001

"...the Parties included in Annex I shall implement domestic action in accordance with national circumstances and with a view to reducing emissions in a manner conducive to narrowing per capita differences between developed and developing country Parties while working towards achievement of the ultimate objective of the Convention"

1. Background

The resolution above formed part of the agreement on flexibility mechanisms reached at negotiations in Bonn in July 2001. This is one of the first times that official reference has been made in climate change negotiations to the concept of per capita emissions and reflects a growing level of support for some broader principle of equity that would, in time, permit developing countries to take on fair and reasonable targets. Perhaps the most systematic and influential proposal building on the idea of equal per capita entitlements to the use of the global atmospheric commons is the approach known as 'contraction and convergence' advocated by the Global Commons Institute (www.gci.org.uk).

Differences in per capita emissions have, nevertheless, had a substantial substantiated effect on climate change negotiations to date. The exclusion of developing countries from targets is due not only to their low incomes but their low emissions per capita. In the case of industrialised countries, expectations about the responsibility to take action have been influenced by recognition of each country's overall contribution to the climate problem as well as by perceptions of the profligacy of individual citizens in each country.

However, serious consideration of these issues can proceed only on the basis of good information on emissions. While any number of reports and papers have reported on energy emissions per capita, no one has reported on comprehensive per capita emissions, taking account of all sources and sinks.[1] Yet the data required to calculate per capita emissions for industrialised countries are readily available from the official communications of the United Nations Framework Convention on Climate Change (UNFCCC) secretariat.

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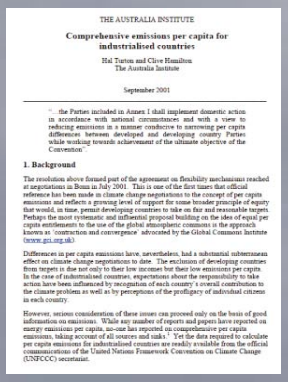
Australia Institute
http://www.gci.org.uk/Documents/Australia_Institute.pdf



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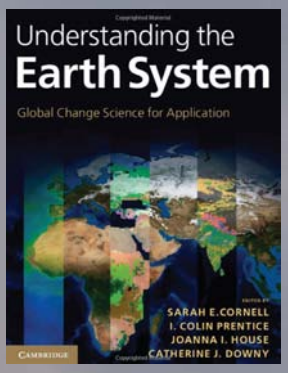
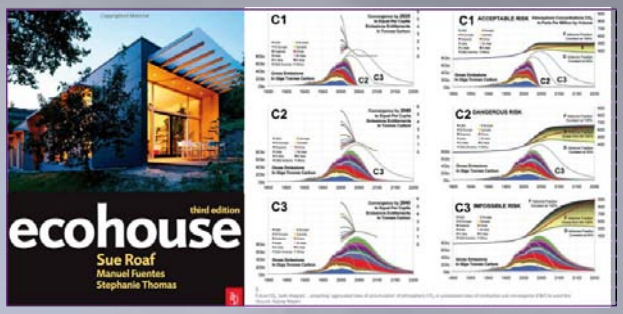
*" . . . More countries might be willing to agree to **'Contraction and Convergence'** from the outset than to the supplementary system, while developing countries might agree to join the former in view of the desperate need for a climate change agreement and of the prospect of the supplementary system being introduced in its wake, once international co-operation about mitigation and adaptation was in place. Hence a system of Contraction and Convergence probably remains the best prospect for addressing the global problems of mitigation and adaptation, and at the same time a promising spring-board for achieving a global agreement on addressing the problems of poverty and under-development of the kind that is also urgently needed."*

Human Ecology Review, V 17, 2, 2010 105 Robin Attfield
http://www.gci.org.uk/Documents/Attfield_.pdf



*Failings in integrating the social, environmental and economic dimensions can be seen in concern about the 'double jeopardy' problem where the world's poorest people are likely to be most exposed to climate hazards but also are likely to have the least adaptive capacity. In the equity debates relating to the **'Contraction & Convergence'** approach (GCI, 2005) used in the UN Framework Convention on Climate Change, which has focused attention on the emissions associated with the historic development of the world's rich countries; and of course in the discourses of payments for ecosystem services and the Kyoto and post-Kyoto mechanisms for climate mitigation.*

Understanding the Earth System;
Sarah Cornell, Colin Prentice, Joanna House, Catherine Downey
http://www.gci.org.uk/Documents/Understanding_the_Earth_System.pdf

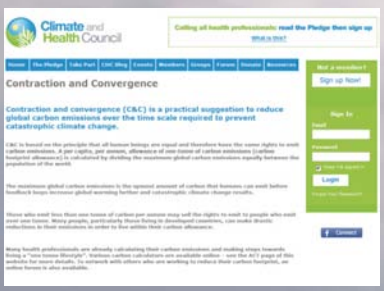


For a full account of the theory of ***'Contraction and Convergence'*** see the GCI website
Ecohouse - Sue Roaf
http://www.amazon.co.uk/Ecohouse-Sue-Roaf/dp/0750669039/ref=sr_1_1?s=books&ie=UTF8&qid=1297968679&sr=1-1#_

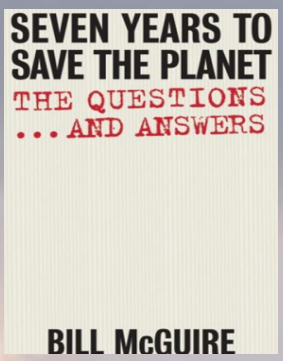
"Luxury emissions are different from survival emissions, which emphasises the need for a strategy of contraction and convergence, whereby rich countries rapidly reduce emissions and poor countries can increase emissions to achieve health and development gain, both having the same sustainable emissions per person.

Contraction and convergence *- Climate change requires two possibly conflicting actions. Carbon emissions must be reduced to avoid the worst outcome of climate change. Poor countries need rapid economic development so that no country, community, or individual is too poor to adapt to climate change. The concept of contraction and convergence, developed by the Global Commons Institute, considers the need to pursue both these actions simultaneously. Contraction and convergence reduce overall carbon emissions to a sustainable level but do so according to an equal share of emissions per person globally. Industrialised countries would dramatically reduce their emissions whilst developing countries would increase theirs to allow for, and stimulate, development and poverty reduction."*

Lancet and University College London Institute for Global Health Commission - Managing the Health Effects of Climate Change
http://www.ucl.ac.uk/global-health/ucl-lancet-climate-change.pdf



An extensive network of Doctors and Health Professionals. Climate and Health Council
http://www.climateandhealth.org/



"There is a way of cutting global greenhouse gas emissions that is equitable, sensible and workable. It is called ***Contraction & Convergence,*** *or simply C&C. It is the brainchild of the South African musician Aubrey Meyer, founder of the London-based Global Commons Institute. Meyer grasped the urgency of finding a viable solution to climate change earlier than most of us realised that there was a problem."*

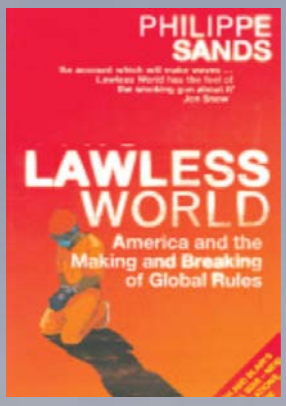
Seven Years to Save the Planet
Bill McGuire on C&C

*"There has been substantial literature internationally concerning '**Contraction and Convergence**'of emissions per capita. [GCI]."*
"Report for Congress" on C&C
http://fpc.state.gov/documents/organization/110373.pdf

*"Policies such as '**Contraction and Convergence**' to solve global warming also require simultaneous implementation. As far as any future regulation of transnational corporations is concerned, surely it is difficult to see how any significant regulation could possibly be implemented on any basis other than globally and simultaneously."*

SIMULTANEOUS POLICY
http://www.simpol.org.uk/forum/index.php?board=50.0

SIMPOL.ORG.UK
Global grassroots co-operation in action

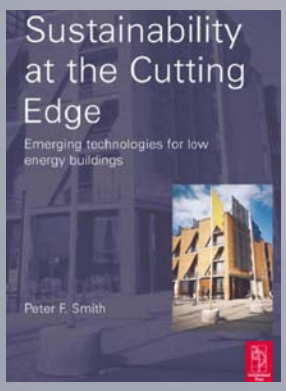


Governments are not the only participants, unlike in the old days. The demands of legitimacy and accountability in international law-making mean that the doors have been opened to all and sundry.

For global warming negotiations there were hundreds of observers and participants, representing corporations (the oil and automobile industries in particular) and nongovernmental organizations such as Greenpeace and Friends of the Earth, as well as a myriad of developmental groups like Christian Aid and Oxfam. There were a smaller number of NGOs from developing countries, some were highly effective.

*There were also individuals participating on their own account, like Aubrey Meyer from Willesden, north London, who attended all the sessions and has now made an important contribution with his theory of '**Contraction and Convergence**' (which proposes setting a global cap, and then gradually reducing emission entitlements until each person on the planet has the same emission rights).*

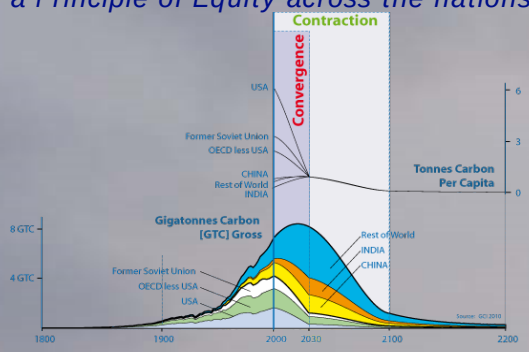
Lawless World - Prof Philippe Sands
http://en.wikipedia.org/wiki/Lawless_World_(book)



How can the burden of emissions reductions be shared equitably between nations? The Global Commons Institute argues that the only fair way to share it out is to give every person in the world the same allocation of carbon dioxide emissions. That is shown in the diagram as applying from the year 2030; between now and 2030 is the period of 'convergence'. That is a very radical proposal; for instance the allocation to someone in the UK would be less that 20% of our current average per capita emissions. The only way it could be achieved would be through carbon trading between nations.

Industrialized nations would buy carbon credits from countries in the developing world, where the per capita rate of carbon emissions is below the target average so that the carbon gap progressively narrows ultimately to zero. This proposal well illustrates the problem and the type and scale of action that is necessary; it is also one that meets to a good degree the four principles that need to underlie such action are:

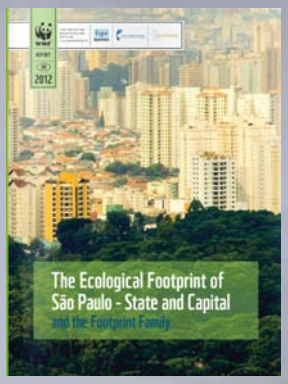
- *the Precautionary Principle,*
- *the Polluter Pays Principle (e.g. through measures such as carbon taxes or capping and trading arrangements),*
- *the Principle of Sustainable Development and lastly*
- *a Principle of Equity across the nations and across the generations.*



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

*The figure comes from the GCI. The proposal it describes is called **'Contraction and Convergence'.** It shows emissions of carbon dioxide in the past, in the present and predictions for the next 100 years, the sources of emissions being divided into major country groupings. The overall envelope is an emissions profile that would stabilize carbon dioxide concentrations in the atmosphere at 450 ppm, It peaks within a few decades from now and then comes rocketing down to well below today's value of emissions by the end of the century.*

Sustainability at the cutting edge
http://www.gci.org.uk/Documents/CUT-Edge.pdf



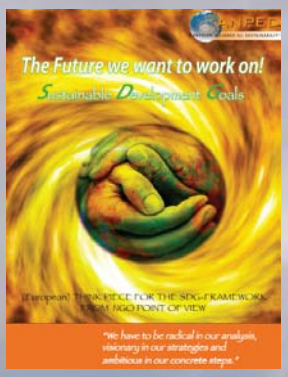
The Ecological Footprint is based on the premise that we are making use of natural assets that are finite and that means that it is not sufficient merely to improve efficiency in resource use especially when the ricochet effect of economies is considered.

There is an urgent need to think in terms of the qualitative growth of the economies and their interactions with the environment given that the extraction of renewable natural resources is also influential in determining land settlement patterns.

*The three indicators reveal the unequal distribution of resource use among the inhabitants of the world's different regions. Based on such data it is possible to provide support for development policies and endorse concepts such as **'Contraction and Convergence'**, environmental justice and fair sharing.*

The Ecological Footprint of Sao Paulo - WWF 2012

http://issuu.com/globalfootprintnetwork/docs/sao_paulo_ecological_footprint_2012



Contraction and Convergence

Our economic system is actually based on debts. Most of our money and financial transactions are virtual. We need to bring back the economy into a real economy. One of the options is a common-based-economy, bringing the economic system also back within the limits of the planet's resources.

What has become patently clear is that business as usual is not an option. Thus, the starting point of the SDG/post-2015 framework must be in respect of the original definition of Sustainable Development (Brundtland Report): "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." According to the same report, the above definition contains within it two key concepts: -

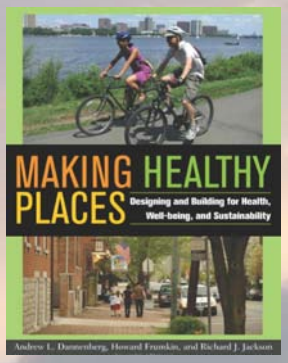
"The concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs".

In short, the SDGs are not about new commitments, but about ambitious means and targets and strong decision/will to fulfil/implement what has been already since 1992 agreed among nation leaders.

Accordingly, the framework should set out the conditions that need to be put in place to overcome the obstacles people face in participating fully in society in a satisfying way. These obstacles are rooted in political, legal, social, economic, and other structures starting at the local level and extending up to the international level. The adverse effects of these obstacles are compounded by the accelerated impacts of environmental degradation, increasing risks because of climate change, the demographic crisis and mounting social inequality and ecological debt that has arisen out of an ineffective paradigm of growth and development.

The Future we want to work on - ANPED

http://www.gci.org.uk/Documents/ANPED-SDG_Post-2015-EU-think-piece1.pdf



- *Planning and development of our built environment can facilitate **'Contraction and Convergence'** and enable people to live in healthy ways.*

Making Healthy Places Building Design for Health, Well-Being and Sustainability

Andrew Dannenburg, Howard Frumkin, Richard J Jackson

http://books.google.co.uk/books?id=ITbVtSBwmM8C&pg=PA373&dq=%22Contraction+and+Convergence%22+Making+Healthy+Places&hl=en&sa=X&ei=rgdEUrf2Oqi57AaIqIGwDg&ved=0CEgQ6AEwAg#v=-onepage&q=%22Contraction%20and%20Convergence%22%20Making%20Healthy%20Places&f=false

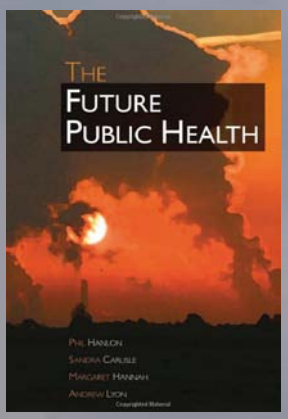
Emergent & ecological ethics

A simple aim of policy should be to reduce the ecological footprint of the NHS. This could conceivably be achieved in several ways.

- *First, pursue activities directed at energy efficiency, food procurement, and equipment design. Many parts of the NHS are already beginning to explore these options.*
- *Second, abandon resource intensive policies that have marginal health gains (the disposable instrument culture is one example).*
- *Third, do some things differently. A very large proportion of acute care is directed towards patients who are in the last six to twelve months of their lives. Yet we have a default position which drives an approach to investigation and treatment that is resource intensive and often fails to serve the needs of the dying person.*
- *Fourth, do less, where appropriate. We may have to accept that in a resource-constrained world, we could be satisfied with less: fewer consultations, less treatment, less of some forms of health care. This does not mean that outcomes would automatically worsen; they could well improve.*
- *Fifth, simplify the NHS. The future is likely to be characterised by what is currently called 'downshifting' – voluntarily making life simpler with less choice and fewer demands. The NHS could embrace this philosophy and release the creativity of staff and patients so that a model for practice emerges which is not only simpler but leads to better outcomes and patient and practitioner satisfaction.*
- *Sixth, make every NHS facility accessible on foot, by bicycle, and by public transport.*
- *Seventh, produce drugs and equipment with as little reliance on petrochemicals as possible; all consumables used by the NHS should be produced locally where possible.*
- *Eighth and last, the NHS should acknowledge and act on broader ecological principles of **'Contraction and Convergence'** (Meyer 2000) in the service of global social justice.*

In addition, rather than speaking of the NHS as an abstract reality, it might be better framed as staff, patients, teams, services, facilities and so on, all working with the personal intention to leave the world in a better shape than we found it. This is a restorative ethic, relational & intrinsically more resilient than our current just-in-time delivery style.

Applying the integrative framework to the major public health challenges & the future NHS
http://www.gci.org.uk/Documents/PHC_NHS.pdf



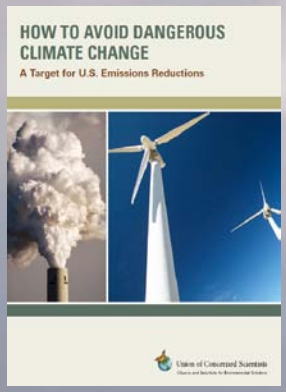
It has been calculated that a world of more than nine billion people will require an 80 to 90% reduction in carbon use by rich countries and drastic reductions in many other forms of consumption, to avoid worsening of existing problems. If sustainability and global equity is to be a goal, we will have to achieve 'contraction' in the richer world and 'convergence' with the poorer world.

*The phrase '**Contraction and Convergence**' has primarily been used as a response to the threat of runaway climate change (Meyer 2000), and is one with which public health practitioners need to be familiar. Meyer's argument is that the whole world needs a contraction In the production of atmospheric carbon dioxide, which is an output of increased industrialization and economic growth. Rich and poor nations must eventually converge in their carbon production to avoid nothing less than a climate catastrophe. Less developed nations must be allowed to develop - so their carbon use goes up - while Industrialized and post Industrial nations must make substantial reductions (Meyer 2000).*

Failure to contract and converge will have health consequences that may be hard to predict but will probably include the loss of agricultural land, severe storms and flooding, forest fires, hunger and forced economic migration, and so on. Contraction and convergence is of course another form of redistribution on a global scale, and the concept can apply to other resources and not just the carbon that affluent societies depend on.

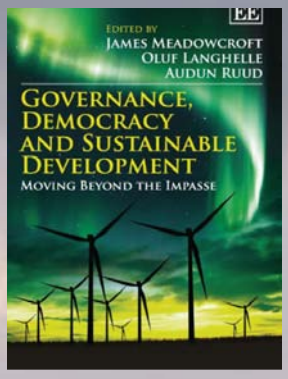
*Consider, for example, the challenge of '**Contraction & Convergence**'. This is a concept that has been developed in response to global warming and other environmental threats. The idea is simple. The world needs a contraction in output of carbon dioxide but for all to buy in to such an agreement it must be transparently just: hence the need for convergence. Less developed nations must be allowed to develop, which may mean an increased carbon utilization, while Industrial and Post-Industrial nations must make substantial reductions. However, an ethical framework which ensures global justice & equity while safeguarding the rights of of individuals has yet to emerge.*
This will be a key challenge if the world is not to face runaway climate change & collapse.

The Future Public Health
Phil Hanlon, Sandra Carlisle, Margaret Hannah, Andrew Lyon
http://www.amazon.co.uk/Future-Public-Health-Phil-Hanlon/dp/033524355X/ref=sr_1_1?s=books&ie=UTF8&qid=1336461181&sr=1-1



*Given a global emissions budget (the overall amount of carbon that can be released into the atmosphere worldwide), the next task is to allocate each nation's share of responsibility for the budget—first, by dividing the budget between industrialized and developing nations as a whole, and then, among individual nations. Several proposals suggest that the most equitable approach would be to allocate global emissions reductions by population for example **'Contraction & Convergence'.***

How to Avoid Dangerous Climate Change
Union of Concerned Scientists
http://www.gci.org.uk/Documents/UCS_Report.pdf

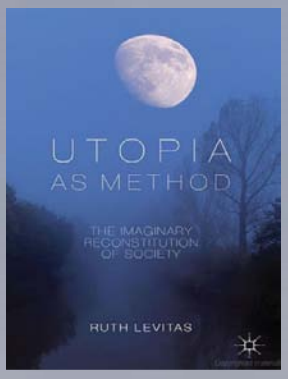


*Thus, the national action prescribed is anchored in a distinct perception of global justice – that equal emissions rights on a per capita basis, often dubbed "**Contraction and Convergence**".*

Governance, Democracy and Sustainable Development: Moving Beyond the Impasse?
James Meadowcroft, Oluf Langhelle, Audun Rudd
http://books.google.co.uk/books?id=i5h2OY6gC6sC&pg=PA193&dq=%22Contraction+and+Convergence%22+Governance+Democracy+and+Sustainable+Development&hl=en&sa=X&ei=PAhEUrTYLInR7AaC0YH4DQ&ved=0CEoQ6AEwAg#v=onepage&q=%22Contraction%20and%20Convergence%22%20Governance%20Democracy%20and%20Sustainable%20Development&f=false

*This is advocated with awareness of the magnitude of the political task. In the view of the RCEP, a standing advisory body to the UK government, 'an effective, enduring and equitable climate protocol will eventually require emission quotas to be allocated to nations on a simple and equal per capita basis' (RCEP, 2000, p56). In this scenario, national emission quotas would follow a **'Contraction and Convergence'** trajectory, with each nation's allocation gradually shifting from its current level of emissions towards a level set on a uniform per-capita basis (RCEP, 2000, p57). Quite what this would mean for airlines and airports has yet to be determined. For governments committed to stabilizing anthropogenic influence on climate change, the outcome for aviation will be particularly influenced by societal priorities for fossil fuel use and rates of technological change.*

Towards Sustainable Aviation Paul Upham
http://books.google.co.uk/books?id=XFfDG2MwIEgC&pg=PT62&dq=%22Contraction+and+Convergence%22+Sustainability&hl=en&sa=X&ei=cSsPUuKcGsea0AXm_IDQAQ&ved=0CD8Q6AEwATgU#v=onepage&q=%22Contraction%20and%20Convergence%22%20Sustainability&f=false



The questions of sustainability arid equality are linked in the idea of Contraction and Convergence. This principle underpins Stern's approach amid international agreements about the progressive reduction of carbon emissions. It derives from Aubrey Meyer, environmental campaigner, founder of the Global Commons Institute and musician.

Meyer begins by reflecting that 'both writing and playing music are largely about wholeness and principled distribution of "effort" or practice. Responding to the climate challenge seems much like writing or playing music, where balance on the axes of reason and feeling, time and space, can only come from internal consistency'. 'Perhaps', he says, 'all life aspires to the condition of music'.

For Meyer & Stern, ***Contraction and Convergence*** *apply only to national per capita levels of carbon emissions, but the approach can be widened to include other scarce resources & inequalities within states.*

Utopia as Method Ruth Levitas
http://books.google.co.uk/books?id=3RI0AAAAQBAJ&pg=PA211&dq=%22Contraction+and+Convergence%22&hl=en&sa=X&ei=5ysMUu2tJKqX0QWYy4DYBA&ved=0CDIQ6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false

The 60% target came from RCEP 2000

38. A key feature of the draft Bill is the long-term target of a 60% reduction in carbon dioxide by 2050. This target was first announced in the Energy White Paper of 2003, and, as the Government acknowledged in its oral evidence to us, was in response to a recommendation by the Royal Commission on Environmental Pollution (RCEP) in its influential report, Energy: the Changing Climate, published in 2000.38

39. The 60% target which the RCEP recommended was based on the adoption of the 'contraction and convergence' approach first advocated in 1990 by the Global Commons Institute. ***Contraction and Convergence*** *involves calculating the maximum global level of emissions which could be regarded as 'safe', and apportioning these emissions to countries on an equal per capita basis. Some countries, in particular the carbon-intensive developed nations, would currently be well in excess of their apportioned amounts and would need to radically reduce their emissions, while less developed countries would be allowed to increase their emissions.*

40. Since the RCEP made this recommendation in 2000, understanding of climate change has increased significantly. Research carried out in recent years, most notably, as far as many of those submitting evidence are concerned, the Tyndall Centre, has indicated that the risks of climate change are greater than previously assumed, and that the 'safe' level of carbon dioxide in the atmosphere is lower than previously thought. Box 2 highlights research in the Stern Review which places the UK in the context of a division of global emissions targets by different blocs of nations; it suggests that the UK and other developed countries need to cut their emissions by at least 60%-90%. Indeed, much of the evidence we received from experts consequently indicated that the target of 60% was insufficient, and that a target of up to 80% would now be more appropriate. Amongst witnesses, with the solitary exception of Lord Lawson of Blaby, there was a remarkable degree of consensus on this point across environmental NGOs, scientific institutions, and even the Government itself.

Report on the Draft Climate Change Bill
From the Lords, House of Commons
Joint Committee on the Climate Change Bill

1. Aged 43, Aubrey Meyer put brackets around a career in music and cofounded the Global Commons Institute (GCI) in London in 1990. Since then he has campaigned at the United Nations negotiations on climate change to win acceptance of the management of global greenhouse gas emissions through the framework of, ***'Contraction and Convergence'****.*

In 1998, he won the Andrew Lees Memorial Award for this and, in 2000, the Schumacher Award. In 2005 the City of London made a life-time's achievement award to him, saying that from the worlds of business, academia, politics and activism, he had made the greatest contribution to the understanding and combating of climate change having led strategic debate or policy formation. The citation read, "in recognition of an outstanding personal contribution to combating climate change at an international level through his efforts to enhance the understanding and adoption of the principle of ***Contraction and Convergence****."*

C&C is now cited as, ". . . destined to become 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 Aubrey [in a recent edition of the New Statesman] as "one of the ten people in world likely to change it."

2. How ***Contraction and Convergence*** *(C&C) works and the growing and expert support for it, is laid out it some detail on the DVD created by the UK All Party Parliamentary Group on Climate Change published in May 2007. 50,000 copies of this DVD have been requested and distributed globally since that time.*

General Statement

3. The United Nations Framework Convention on Climate Change (UNFCCC) was signed at the Rio Earth Summit in 1992. Its objective is to avert the growing climate crisis by stabilising the dangerously rising concentration of greenhouse gas concentration in the global atmosphere caused by human emissions. Its principles are precaution and equity. In a phrase, this means ending unequal rights to use the atmosphere

as a dump for emissions without limit as failing to do this will result in the political deadlock that leads to catastrophic rates of global climate change.

4. The objective and principles of theUNFCCCare the legally agreed global basis of success. As stated by the Convention's Secretariat in 2003 and many others, these give rise to an international process of emissions Contraction and Convergence (C&C) where, on the basis of equal rights per person to emit, the global total of emissions must fall fast enough to secure the Convention's objective—safe and stable greenhouse gas concentration in the global atmosphere. This constitutional but flexible rationale was specified to Government in the Report of the Royal Commission on Environmental Pollution [RCEP 2000—"Energy the Changing Climate"].

5. This year [2007] UK government's 'climate-bill' makes the first attempt anywhere to actually legislate for the reduction of the greenhouse gas emissions from human sources. While the Government deserves credit for making this eVort, it hardly had a choice given their increasingly vivid statements about the seriousness of the climate change problem.

6. The key is for the bill to be eVective:—and the 60% cut in UK emissions by 2050 it proposes is inadequate as any internationally equitable arithmetic based on this will in total exceed any chance for achieving safe and stable greenhouse gas concentration in the global atmosphere.

7. For reasons never explained, & still preferring a global "upstairs-downstairs" relationship between developed and developing countries where the diverence between per capita emissions go from very high to very low, the UK Government's bill has cherry-picked its UK national figure [minus 60%] from the Royal Commission while rejecting the international C&C rationale from which it was derived and then advocated as a whole by the RCEP as is common knowledge globally.

8. So, the practice needed to secure the UNFCCC's objective will continue to fail at an accelerating rate as the overall situation deteriorates for as long as the UK government fails to advocate the constitutionally disciplined numeracy of C&C needed UNFCCC-compliance..

9. Rising greenhouse gas concentration in the atmosphere is an accumulation of human emissions; since emissions are still rising, inevitably concentration is rising too. In total, human global greenhouse gas emissions are like water from a tap flowing into a bath where as the atmosphere the emissions accumulate. To prevent overflow the tap must be turned right oV. Instead, the tap of emissions is flowing faster than ever; worse still is the acceleration of this. Natural sinks for these gases—forests and oceans—are like the drain plug in the bath. Where previously around half of the annual build-up of gas in the atmosphere was drained away via these sinks, they are now proportionately less active as sinks and in some cases actually show signs of becoming sources; forests burn, oceans warm and are less biologically active as they acidify and retain less carbon dioxide. In short, the tap is running faster than ever, the drain is blocking up, and the bath level is accelerating upwards and we continue cause the problem faster than we act to avoid it.

10. As James Hansen, James Lovelock, the latest Intergovernmental Panel on Climate Change (IPCC) Report and many others have repeatedly stressed, this process can accelerate beyond any hope of our controlling it, where the consequences will be disastrous for all the children. To deal with this and give them a chance, emissions must fall rapidly and we must do enough soon enough globally for them to keep the objective of theUNFCCCachievable. Children should be turning this rational demand on their parents with a vengeance.

11. In March the UK Government circulated a draft of the climate bill for public consultation where it abandons all reference to the Royal Commission and to C&C. It says hopefully instead that the UK contribution is to place "a clear and credible pathway to a statutory goal of a 60% reduction in carbon dioxide emissions through domestic and international action by 2050." This is hopeless as it is both globally random and internationally inadequate. Against the requirements of theUNFCCC, the figure is a white flag to the changing climate and a red rag to developing countries. Copies of the DVD can be obtained by written request to GCI. Alternatively, interview material is retrievable at this link: http://www.gci.org.uk/images/Contraction-and-Convergence-Challen-et-al.mpg.
The DVD also includes a heuristic animation of ***"Contraction and Convergence"*** *for a risk analysis of diVerent rates of sink-failure endorsed by prominent industry persons. It is retrievable at this link:*

12. While our Prime Minister calls for developed and emerging economies to work together towards a new binding and inclusive post-Kyoto framework where each country, its businesses and its people play their parts, the Environment Minister of Pakistan comes to Chatham House in London to say that C&C is an idea whose time had come. While the Indian Government calls for the ending of global apartheid in the Daily Telegraph saying that the case for C&C is "unassailable", they reject in perpetuity being positioned as second class climate "petitioners", promising instead as 'partners' never to let their average per capita emission go above the average of the developed countries.

13. The very grave danger we now face is that vacuous 'sustainable development' defaults to the futile model of "separate development" that nearly led to a racial conflagration in "apartheid" South Africa.

14. For the UK lead to be clear and credible it must embrace this lesson as a global constitutional truth. The bill needs to enshrine C&C like a global bill of rights. It flies in the face of sanity to go on defending internationally unequal claims on the atmosphere and violate the global limits that are needed to save us all from what the Prime Minister has called a looming "climate catastrophe". Defending inequality sustains a conflict that has festered at the UN for the last 15 years. Unless stopped it ends in tears.

15. Only when the Government rises to this constitutional challenge by referencing C&C-logic to the emissions control aspirations in the climate bill, can they rightfully claim to lead with the global example that ensures reconciliation with each other and the planet.

Scope of Committee's Inquiry—The Committee Focuses Its Inquiry on Themes Stated in **Bold**.

GCI Answers Follow each Question [& Ref APPGCC C&C DVD Provided]

1. What the main aims and purposes of the Bill are and why it is needed.

The Bill aims to make into UK law the requirements of UK in the light of its status as a signatory to the United Nations Framework Convention on Climate Change. The draft bill has an emissions control figure [60% UK emissions by 2050 against a 1990 baseline] that is based on no stated rationale or methodology that demonstrates an awareness of the need to solve the climate problem faster than we are creating it. This awareness is needed & its omission is a fundamental flaw in the bill as it stands.

2. To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed?

As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, the UK is already required by international Law to define and deliver its share of the international task defined by the objective and principles of the UNFCCC. Unless and until the rule of law ceases to apply and chaos reigns, all voluntary actions are governed by this institutional reality. Assessing this task in the sense of global proportionality is fundamental to resolving the challenge and applying this assessment. The absence of having rationally assessed the problem, renders the climate bill into a "symbolic" statute as it potentially governs a merely half-hearted, insuffcient and so wasted effort.

3. Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour.

The public individually and both public and private institutions cannot be expected to support, and indeed are unlikely to support, measures that are seen—in the absence of a clear and credible global rationale and a global commitment to this—as doing too little too late.

4. Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence.

Based on the most recent appropriate evidence of sink-failure and enhance positive feedback to global warming, the control figure is inadequate and irrational; divorced from now available empirical data and feedback about this, it is globally random. CO2 emissions must be globally rationed according to the ***'Contraction and Convergence'*** *(C&C) methodology [on which this figure was originally based]; in the light of this new evidence and simple risk analysis [see DVD]. With this, all and indeed any national statutes set consistent with the internationally agreed C&C objective and principles of the United Nations Framework Convention on Climate Change (UNFCCC) have a chance of being effective.*

Without this, all and any statutes to this stated purpose are vulnerable to the charge of irrationality and will be overwhelmed.

5. What diffculties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so?

The diffculties faced by this and indeed all governments, here and abroad over the next few decades are "quantum". We need to know where we are and where we are going in relation to, but also in concert with, everyone else [ie jointly and severally] throughout the multi-decadal period relevant to the integral of emissions that is consistent with achieving the objective of the UNFCCC. This by definition is "teleological" and this is not moment to go out of focus. It means that the "optimal trajectory" cited nationally is inextricably linked with the "optimal trajectory" internationally/globally. The suggested distinction and choice between UK annual, or UK five-year, budgets is meaningless in the absence of a global rationale. This is where the UK bill is at its weakest—the control figure is devoid of any such rationale and this makes this "choice" and efforts to resolve it appear theoretical and even pedantic.

6. The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target.

"Carbon credits" from "sequestration" and the various forms of "offsets" are largely symbolic in the absence of a rigorous accounting system which in turn is rigorously defined by a clear and credible international framework enumerated of the objective and principles of the UNFCCC. Subject to this C&C framework, all forms of carbon avoidance should be encouraged; without it they will be largely meaningless.

7. Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments.

Similarly the UK's intended 'national' committee on climate change is largely symbolic in the absence of a rigorous accounting system defined by an international framework enumerated oV the objective and principles of the UNFCCC. Subject to this framework, the creation of this committee and reference to its work will be relevant and essential.

8. The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism.

Similarly the UK's intended judicial review with enforcement mechanisms for non-compliance will be largely symbolic in the absence of a rigorous accounting system defined by an international framework enumerated by the objective and principles of the UNFCCC. Subject to that, the review and enforcement procedures will be relevant.

9. How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations.

The relevant unit of globally devolved powers will probably for the UK be from the European Union downwards. Provision of the bill that are devolved from the UK national government to the regions will not be credible if the bill remains as it presently is, including if the EU itself remains unreferenced to any credible global rationale.

10. Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets.

See answer Question 9.

11. How the contents of the Bill will affect international climate change activity.

This is actually the apex question in this list. The diffculty we all face is that globally we are already well advanced in a process of having cumulatively created this problem much faster than we are responding to avoid it. CO2 emissions and GDP remain almost perfectly correlated so the problem is double-jeopardy. Damages from climate change—albeit from a lower based—grow on average at twice rate of GDP. Also the benefits of this $ growth are asymmetric largely favouring the one third of global population who enjoy 94% of US$-equivalent purchasing power. The two thirds of population who share the remaining 6% are also taking most of the real climate damages. Without C&C this is a recipe for conflict on a scale without precedent.

12. Whether the delegated powers contained within the Bill are appropriate and adequate.

In the absence of the C&C framework they, like the bill itself, are neither.

Evidence to the Lords, House of Commons Joint Committee on the Draft Climate Change Bill

The BMJ's Spotlight on Climate Change:

* *How the low carbon economy can improve health*
http://www.bmj.com/content/344/bmj.e1018

* *The health impacts of climate change*
http://www.bmj.com/content/344/bmj.e1026

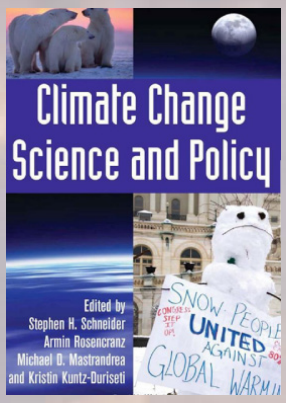
* *Climate change and resource security*
http://www.bmj.com/content/344/bmj.e1352

* *Politics and policies: making change happen*
http://www.bmj.com/content/344/bmj.e1356

* *Climate change: what needs to be done*
http://www.bmj.com/content/344/bmj.e1358

* *Health risks, present and future, from global climate change*
http://www.bmj.com/content/344/bmj.e1359

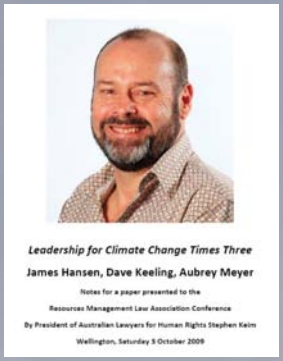
* ***'Contraction and Convergence'** a solution to the twin problems of climate change and inequity*
http://www.bmj.com/content/344/bmj.e1765



The question of how the costs of mitigation should be shared has received a relatively large share of attention in the climate debate and indeed can be characterized as "the equity question. Most analysts have concluded that fairness would seem to require acknowledgment of a fundamental equal right to make use of the global common sinks for greenhouse gas pollution. Some have proposed a straight per capita allocation of emissions rights or (more commonly) convergence to an equal per capita allocation over time. See, for example, A. Meyer, **Contraction and Convergence:** *The Global Solution to Climate Change (Devon, UK: Green Books, Z000) or the website of the Global Commons Institute for a discussion of the classic* ***'Contraction and Convergence'*** *proposal.*

Climate Change Science and Policy
Eds Stephen Schneider et al

http://books.google.co.uk/books?id=8Z85BOS90GkC&pg=PA260&dq=%22Contraction+and+Convergence%22+law&hl=en&sa=X&ei=JAcJUsydM4aI0AXZn4DYBw&ved=0CGwQ6AEwCTgy#v=onepage&q=%22Contraction%20and%20Convergence%22%20&f=false



The Qualities of Leaders

Some of the qualities we will need from our leaders are shown by the three people whose work I have briefly described. Each of Dave Keeling, Jim Hansen and Aubrey Meyer has shown great persistence. Each of the three has shown great creativity. We will need our leaders to come up with ideas at each stage of the difficult process of combating climate change.

Dave Keeling's *dedication to measuring CO2 levels and getting it right has produced the most uncompromising evidence of all that our addiction to burning fossil fuels is changing, fundamentally, the thin layer of gases on which life on earth depends.*

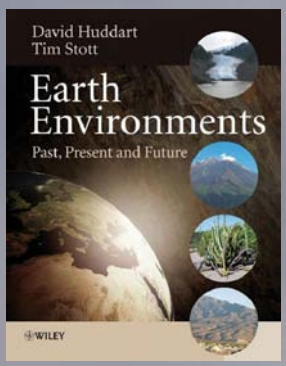
Jim Hansen, *I think, has shown enormous courage as well as persistence. He has been and will continue to be vilified for speaking out and talking to the public in the way that he has.*

Aubrey Meyer *has shown a particular form of leadership: the ability to see through the dilemma to the moral answer. He has understood a particular moral truth, namely, that when everybody is being asked to change their way of life, the easy shortcuts are no longer available to anybody.*

My point in choosing Aubrey Meyer is that climate change leadership will require a very high moral component. Much of what has been said, pre-Copenhagen, has been designed to disguise and hide the tough moral decisions that the future holds. Talk about technology transfer from the developed countries is just a way of avoiding the issue. The demands by countries like India and China not to be frozen out of a western standard of living only makes sense if those countries are also prepared to say how much of a western life style is enough for them. The individual carbon ration, in whatever form it is delivered, is the only way in which climate change can be faced on an equitable basis.

Game theory explains why equity is very important to solving climate change. Solving the problem is a game where any one player can wreck the game for others. If China will not play, the rest of us will go under the waters with China. It is only when everyone is satisfied that the rules of the game are fair that the game can effectively be played. It is only when leaders approach the question on the basis of equity that climate change will have any hope of being controlled.

President of Australian Lawyers for Human Rights
Stephen Keim
http://www.gci.org.uk/Documents/rmla_conference_3_10_09.pdf



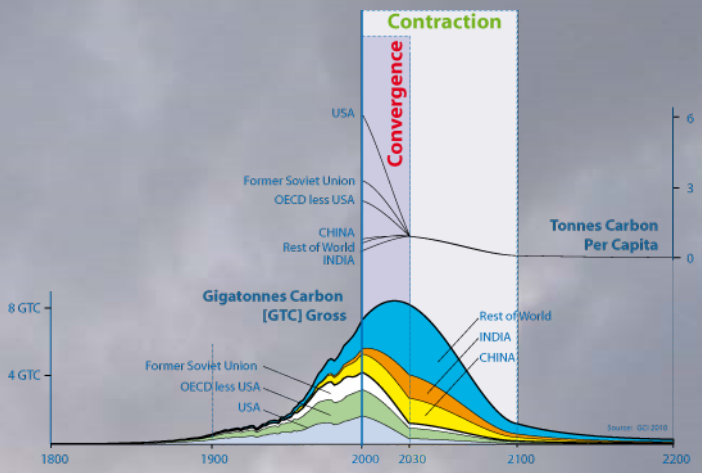
Contraction and convergence: The last hope?

Surporled by China, Germany, The European Parliament, Stern and many others, this concept is on the idea that everyone on planet Earth has the right to emit the same quantity of GHG. At present a US citizen emits 20 tonnes of CO2 each year, a UK citizen emits 11 tonnes while a Nigerian only emits 0.09 tonnes.

*'**Contraction and Convergence'** [C&C] is the Global Commone Institute's proposed UNFCCC-compliant climate mitigation strategy for an equitable solution to cutting greenhouse gas emissions through collective global action.*

The ultimate objective of the UN Climate Treaty is to move to safe and stable GHG concentration in the atmosphere and C&C starts with this. C&C recognizes that subject to this limit, we all have an equal entitlement to emit GHGs to the atmosphere, since continuing unequal use will make it impossible to get global agreement needed for success. The Kyoto Protocol cannot be the basis of this success, because it is not science-based and, due to divergent national interests, it does not include all countries.

Scientists have advised on safe concentration of CO2 in the atmosphere and on the global cap on emissions necessary to achieve it. A level of 450 ppmv has until recently been regarded as the upper limit for keeping under the maximum temperature oncrease of 2 degrees above the pre-industrial average.



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

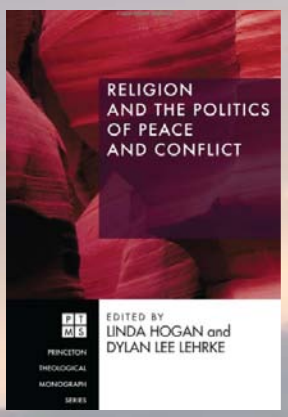
*Figure 31.1 Regional Rates of **Contraction and Convergence**.*

The contraction budget converges on shares equal to population by 2030

From the inception of a global agreement, C&C schedules the mandatory annual global contraction [reduction of emissions] that will keep CO2 concentrations from rising beyond the agreed safe level. This rate of contraction must be periodically adjusted to take account of the increasing release of GHGs caused by climate warming. C&C proposes emissions entitlements to every country. While starting with current emissions, it proposes a scheduled convergence to equal per person entitlements for everyone on the planet by an agreed date [see figure above]. That way, convergence will reduce the carbon shares of the developed over-emitting countries sharply until they converge with the [temporarily rising] shares of the developing countries. The latter will be able to sell their surplus carbon shares to the wealthier nations. Emissions trading will be subject to rapid investment in renewable energy.

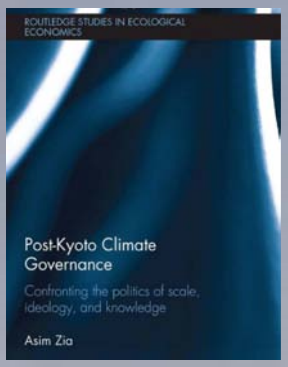
The 14th session of the Conference of the Parties to the Climate Change Convention [COP-14] will be held in conjunction with the 4th Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol [COP 14] in Poznan, Poland, from 1 to 12 December 2008. In 2012 the Kyoto Protocol expires. To keep the process going there is an urgent need for a new climate protocol. In 2012 the Kyoto Protocol runs out. It is to be hoped that discussions at the Climate Conference in Copenhagen in 2009 and subsequent agreements lead to a Copenhagen Protocol to prevent global warming and climate change.

Earth Environments: Past, Present and Future
David Huddart, Tim Stott
http://books.google.co.uk/books?id=ohpdmnPFIHEC&pg=PT894&dq=%27Contraction+and+Convergence%27&hl=en&ei=cFgPTo6tO8vE8QOVsLSuDg&sa=X&oi=book_result&ct=result&redir_esc=y#v=onepage&q='Contraction%20and%20Convergence'&f=false



*Tractate Shabbat translates into the latter-day case for a global equity per person in terms of carbon emissions, as conceived in Aubrey Meyer's **'Contraction and Convergence'** framework for combatting anthropgenic climate change.*

Religion and the Politics of Peace and Conflict
Lynda Hogan & Dylan Lee Lehrke
http://www.amazon.com/Religion-Politics-Peace-Conflict-Theological/dp/1556350678/ref=sr_1_sc_1?ie=UTF8&qid=1376026353&sr=8-1-spell&keywords=Religion+and+the+Politics+of+Peace+and+Conflict+hoga#reader_1556350678

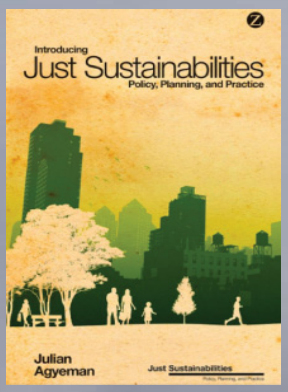


Some early discussions have raised concerns that decisions made outside the UNFCCC process may have negative consequences on the legitimacy or credibility of the regime. However, it must be recognized that negotiations in smaller groups could lead to a more positive outcome which can then complement the multilateral process. Smaller group discussions can help in raising mutual awareness for specific regional problems, disseminating best practices and strengthening networking. Equally important, it can help to keep climate change concerns and cooperative frameworks on the agenda.

Available for some time is the plentiful academic literature on possible ways to move forward to build the climate change regime. While several institutions such as the World Resources Institute have attempted to survey and capture the diverse interests and views, there have been limited attempts for a similar review within institutions of the ASEAN member countries. As such, there is a lack of discussion on bottom—up approaches or alternatives such as the ***'Contraction & Convergence'*** *principle to provide a realistic way to improve the UNFCCC approach.*

What can be observed is that some advanced ASEAN member countries have conducted assessments, but of national interest, and subsequently made voluntary pledges—independently of ASEAN. Moving forward, there has yet to be an assessment on what an individual member country does within ASEAN and what ASEAN as a regional organization is hoping to achieve. The pledges are serious national political commitments indicating a significant shift from business-as-usual.

Post 2020 Climate Change regime Formation Suh Yong Chung
http://books.google.co.uk/books?id=MjYBOyNfKUsC&pg=RA1-PT132&dq=%22Contraction+and+Convergence%22+Law&hl=en&sa=X&ei=twoJUtKJEeOw0AXRmoDYBw&ved=0CD0Q6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22%20Law&f=false



In some respects it should riot be surprising that there are no international agreements regarding the distribution of material resources, and that even agreement over common property resources such as fisheries, oceans, and the atmosphere is the subject of fraught negotiation. Nonetheless, principles of equity, vulnerability, and capability are frequently cited and often incorporated to some degree in international relations. But the dominant international institutions - that is the World Trade Organization (WTO), International Monetary Fund (IMF), and World Bank are dominated by neo-classical economic ideologies of distribution, thus leaving consideration of justice at the margins.

In considering intergenerational distribution, Rawls (ibid.) suggests that each generation should put itself in the place of the next and ask what it could re nab' expect TO receive_ He presents [his thought experiment so as to identify 'just savings! Sustainability theorists have suggested that sustainable or fair rates of use of finite resources could be calculated in relation to the rate at which alternative ways of meeting the same needs are created. For example, it might be sustainable and just for one generation to use fossil fuels in the creation of a renewable energy infrastructure able to meet the needs of following generations.

This example, of course, is made more complex by the implications of fossil fuel use on climate change, and it is here that consideration of large-scale environmental justice has been developed most. Here, consideration of justice and distributional issues has led to the development of a number of proposals for climate justice, such as Meyer's (2001) ***'Contraction and Convergence'*** *which is the idea that emissions should not only gradually contract to an overall sustainable level, but also eventually converge upon equal pet- capita levels in all countries.. Despite its apparent simplicity, this concept has yet to win widespread support even from poorer nations, perhaps because it effectively postpones equity to a future date and does not include any compensation for past inequality. Some such as McLaren (2003), have termed these past inequalities 'climatic or 'ecological debt'.*

As Goulder and Nadreau have suggested more explicitly, in this example we are faced with two alternative uncertainties – of quantity of emissions under an international carbon tax, or price under cap and trade. "Which uncertainty is worse?" they ask, concluding, "There is no easy answer". However, an answer can be given if we are clear about how we order the criteria and our justifications for doing so.

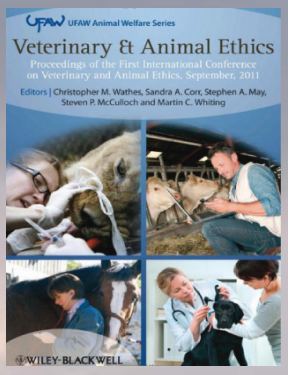
Aubrey Meyer's "prioritized" priorities. The only attempt at such an ordering apparently made to date is by Aubrey Meyer, founder of the ***'Contraction and Convergence'*** *(C&C) proposal.*

C&C was one of the first major policy proposals aiming to offer an ethically sound international approach to mitigating climate change. In common with many other broadly ethical analyses of climate change as an international challenge, it supposed a criterion of equity, but tried to place this within the context of other criteria (referred to as "priorities"), which, ordered according to importance, should ground an agreement on climate change.

These were 1) Precaution, 2) Equity and 3) Efficiency, which, if followed, are supposed to give rise to 4) - "ten thousand things". However, 1 to 3 are all that are significant for our purposes for the time being, since 4 largely signifies that "sustainable prosperity" can only be reached by adhering to criteria 1 to 3 in that order.

Confronting climate crisis: A framework for understanding the criteria for addressing dangerous climate change.

Ruth Makoff - Submitted for the degree of Doctor of Philosophy, University of East Anglia, Philosophy Department

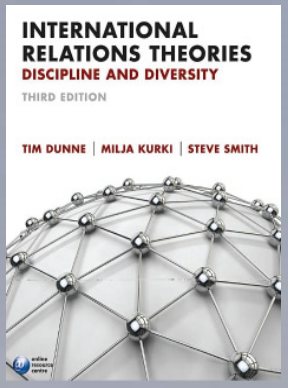


Since excessive meat consumption in developed nations is associated with non-communicable diseases, the most sensible solution is for developed nations to reduce meat consumption. The most rational policy is called ***'Contraction and Convergence'****. This recommends a contraction in meat and dairy consumption in parts of the developed world, which currently consumes an excessive quantity, and an increase in parts of the developing world, ultimately leading to convergence of consumption at a sustainable level. This is consistent with feeding the world more equitably and achieving food justice.*

Q: Inter-governmental organisations like the FAO are aware of the issues and take them very seriously. All these different aspects are now addressed at that level with the 01E, FAO, World Food Programme and so on. I want to pick up on our tendency to generalise and use averages.
You talked about the ***'Contraction and Convergence'*** *model and the different levels of consumption in developed countries versus developing countries. It's important to remember the diversity within those categories. The massive increase in animal product consumption in developing countries is primarily people of middle and higher income; it's not the poor and malnourished, who need those animal products. So policies are required that take account of protection of poor & malnourished people in developed & developing countries rather than simply looking at average intakes.*

A: Yes, I entirely agree.

Veterinary and Animal Ethics
Proceedings 1st International Conference on Veterinary and Animal Ethics - Eds C Wathes, S Corr, S May, S McCulloch, M Whiting
http://books.google.co.uk/books?id=bbRbVo8mTRMC&pg=PT191&dq="Contraction+and+convergence"+vet&hl=en&sa=X&ei=7aIIUpWsHMSU0QW0o4DoAQ&ved=0CDIQ6AEwAA#v=onepage&q=%22Contraction%20and%20convergence%22%20vet&f=false One popular model is 'contraction and convergence' developed by the London-based Global Commons Institute,



*One popular model is **'Contraction and Convergence'** developed by the London-based Global Commons Institute, which proposes a major contraction of emissions by the rich countries and an eventual per capita convergence by all countries at a level that the atmosphere can safely absorb. This model provides developing countries with some room to grow, while also facilitating a considerable transfer of resources from the high per capita emitters to the low per capita emitters under carbon-trading schemes.*

In contrast, the negotiation of the post-Kyoto treaty is likely to follow the approach of the Kyoto Protocol, which avoided a principled-approach to the allocation of targets based on responsibility and capacity, and the best -available science, and simply left it to individual developed countries to choose their own targets. Moreover, some green critics argue that the 'flexibility instruments' introduced into the Kyoto Protocol, such as carbon trading and offsetting, enable those industries which can afford to purchase credits or offsets to continue their carbon pollution and avoid or defer the necessary green investment that would reduce their emissions at source.

Flexibility thus serves to hollow out the responsibility of rich countries and undermine the UNFCCC norm that developed countries should lead the way in combating climate change by pioneering new, low carbon technologies and practices. While it is accepted that the participation of all major carbon emitters (including the USA, the EU, Russia, Japan, China, and India) is essential to the success of a post-Kyoto treaty, the terms of that participation must be such that environmental injustices are ameliorated rather than exacerbated.

International Relations Theories,
Tim Dunne, Milja Kurki, Steve Smith

http://books.google.co.uk/books?id=0fb_U9xlW2YC&pg=PA281&dq=%22Contraction+and+Convergence%22+USA&hl=en&sa=X&ei=zwudUZPCKIrz0gXe7oDQDg&ved=0CEcQ6AEwBA#v=onepage&q=%22Contraction%20and%20Convergence%22%20USA&f=false

*The reference to 'required fairness' reflects the UNFCCC global solidarity principles. France proposed per capita norms as a means to attain equity, a preference also shared by India and China. The French proposal had similarities with the **'Contraction and Convergence'** model promoted by Meyer (2000). Viewing the atmosphere as a 'global commons', the Meyer model sought to distribute national obligations on the basis of international and intergenerational equity. By 'convergence' is understood the long-term transition to common emission levels through substantial cuts on the part of rich nations, whilst allowing the poorest nations to increase their emissions. The 'contraction and convergence' school of thought has found considerable favour among international non-governmentorganisations, who called for greater global solidarity.*

*At the same time, a common per capita target for industrialised countries would be advantageous for France (Godard, 1997: 39), Prior to Kyoto, a narrow framing of the national interest was evident in the French negotiating position which offered merely to contain emissions at below two metric tonne.s of carbon per capita per year by 2000 — level some 10 per cent higher than in 1990 (IEA, 1996: 74). However, emissions per capita did not become an international norm because the implications were too demanding for industrialised nations. As second best, France argued during the negotiation of the 1998 burden-sharing agreement (which programmed an g per cent reduction in ELT-I 5 for the zoos-t a commitment period defined by the Kyoto Protocol) chat, given past performance, stabilising C.71-1G emissions at the 1990 level of 549.34 MiCO2 was enough. The stabilisation target was in contrast to the ambitious cuts accepted by Germany (21 %) and the UK (12.5 France had raised expectations by choosing to highlight equity consi¬derations, but finally refused either per capita or aggregate emissions reduction. The difference with Meyer's **'Contraction and Convergence'** model lay in promoting convergence by others, without volunteering further contraction by France.*

L'intégration européenne par l'environnement: Le cas français By Nathalie Berny

McMaster University
Inspiring Innovation and Discovery

The Climatic Difference Principle
Philip Smolenski

*When it comes to proposing an equitable allocation of the global carbon sink, the dominant approach is a variation of equal-per-capita emissions, with only a few notable exceptions. First introduced by Aubrey Meyer, author of C**ontraction and Convergence** (2001) and member of the Global Commons Institute (GCI), in 1990, and gaining political momentum through Anil Agarwal and Sunita Narain's publication Global Warming in an Unequal World (1991), equal per-capita emissions have been advocated by philosophers and non-philosophers alike.*

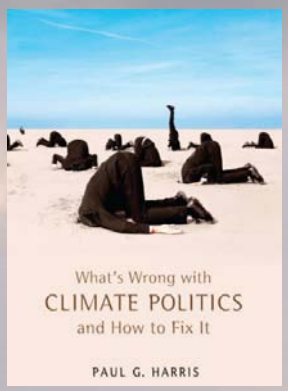
The Climatic Difference Principle
Philip Smolenski - McMaster University
http://digitalcommons.mcmaster.ca/opendissertations/7517/

"This is a practice that will become more widespread, although whether it will ever achieve the aims of a long-running and laudable campaign by Aubrey Meyer, of the Global Commons Institute, is debatable. His idea is to allow everyone in the world an individual carbon budget. The starting point is that the average American emits 20 tonnes of carbon dioxide each year, the average European 11 tonnes, a Chinese 2.4 tonnes and an Indian just over 1 tonne. Africans produce on average even less.

*Aubrey's idea is a carbon allocation for the entire world, on the basis of a cut in man-made emissions of 60%. This total is then divided between countries based on the number of citizens that live in it. Over this century each country should reach its allocation. This would allow poor countries to increase their carbon output for the time being as they develop while the already industrialised countries adopt new clean technologies to reduce their carbon footprint. He calls it **'Contraction and Convergence'**. The idea has been widely praised as a possible way forward in inter-national negotiations but so far, for many countries, mostly the profligate emitters, it seems too tall an order."*

GLOBAL WARMING The Last Chance for Change
Paul Brown

http://www.amazon.co.uk/Global-Warming-Last-Chance-Change/dp/0713682051

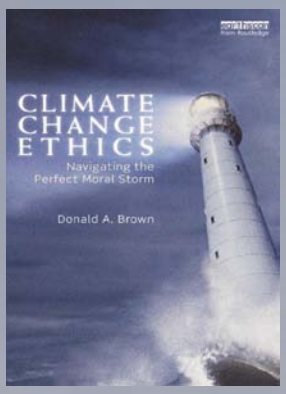


*Several frameworks have been proposed to make people more explicit objects of climate cliplomacy. For example, Aubrey Meyer's concept of **'Contraction and Convergence'** effectively calls for setting an equal per capita allowance of greenhouse gas emissions, followed by a gradual contraction of emissions in nations where they are above the allowance and an increase in emissions for those below the allowance, to the point where emissions converge."*

While it is developed nations that are expected to contract and developing nations that will converge, what is unusual here is that the fundamental measure of which nations must do what is directly related to per capita emissions. Human beings are a bigger part of this proposal than in the standard approaches discussed in most of the climate change negotiations among nations.

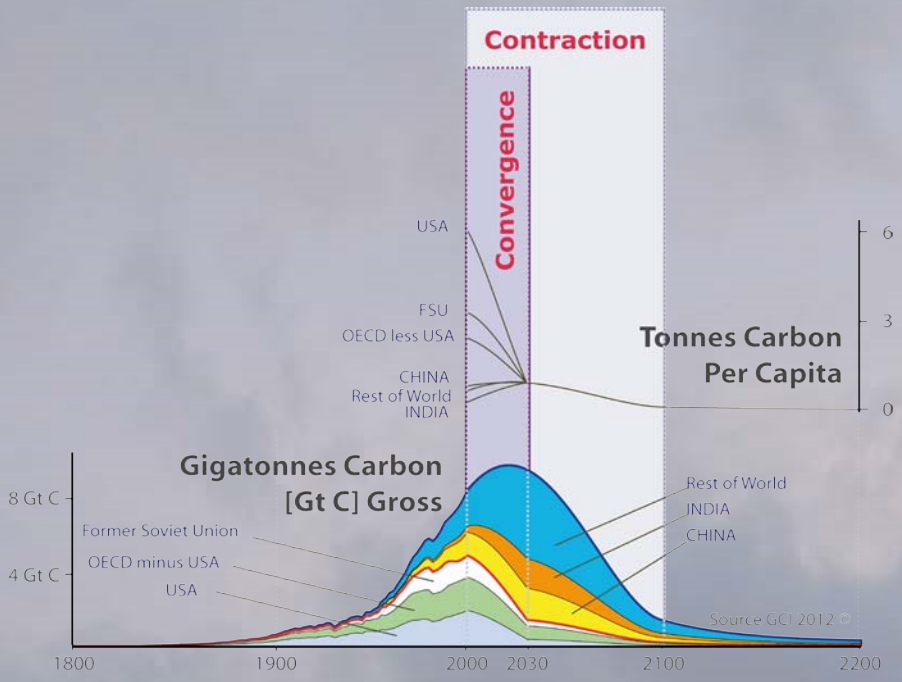
*Some form of '**Contraction and Convergence'** is essential if the world's responses to climate change are to be fair over the long term. While there may be instances where some people are entitled to pollute the atmosphere more than others — for example, if they live in circumstances that require doing this as a means of survival — making such exceptions will require justification.*

What's Wrong with Climate Politics & How to Change It.
Paul Harris
http://books.google.co.uk/books?id=pZQSAAAAQBAJ&pg=PT45&dq=%22Contraction+and+Convergence%22&hl=en&sa=X&ei=FosFUvbPO5Sa0AWMkoCADg&ved=0CD0Q6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false Climate Change Ethics - Don Brown



In addition to these principles, over the last decade, several new emissions reductions frameworks have evolved, which have received widespread attention in the international community, particularly among non-government organizations participating in international climate change negotiations. These include allocation formulas called, ***"Contraction and Convergence"*** *(C&C) and the "Greenhouse Development Rights" (GDR) framework.*

C&C was first proposed in 1990 by the London-based non-governmental Global Commons Institute (GCI 2010) (see Figure).



This example shows rates of global C&C in 6 regions.
It is for a 450 ppmv Contraction Budget with Convergence by 2030.

Basically, C&C is not a prescription per se, but rather a way of demonstrating how a global prescription could be negotiated and organized in a way that ultimately levels off on the basis of equal per capita emissions (Meyer 2000) .

Implementing C&C requires two steps. As a first step, countries must agree on a long-term global stabilization level for atmospheric greenhouse gas concentrations as discussed in the last chapter. Once this is done a global greenhouse gas emissions budget can be calculated that would determine how many tonnes of greenhouse gases can be released into the atmosphere that will allow atmospheric concentrations to be stabilized. As a second step, countries need to negotiate a convergence date. That is, a date at which time the emissions allocated to each country should converge on equal per capita entitlements. During the transition period, a yearly global carbon budget is devised, which contracts gradually over time as the per capita entitlements of developed countries decrease while those of most developing countries increase. C&C would allow nations to achieve their per capita-based targets through trading from countries having excess allotments. And so, under C&C, nations eventually receive binding emissions reductions allocations that are distributed on the basis of equal per capita emissions for all humans.

How to calculate greenhouse gas allocations between nations has always raised tensions between the developed and developing countries; the latter arguing that they have a right and need for economic development to help poor people rise above grinding poverty. In fact, international climate negotiation has been plagued by global North versus South conflicts. Poor developing nations have been deeply worried that climate change policies will exacerbate existing injustices between rich and poor nations if the poor countries' ability to develop economically is thwarted by limits on greenhouse gas emissions.

The second allocation formula based upon equitable considerations is the GDR framework; a framework specifically designed to assure that poor people are not unfairly constrained in a world in which the global economy is constrained by limits on carbon (Baer et al. 2008). GDR begins with an ambitious emissions reduction pathway which, geared to the latest alarming evidence, has a relatively high probability of holding global warming below 2°C (Baer et al. 2008). GDR specifies that individuals whose income is below $7,500 are given the right to development. Under GDR these, by definition, poor individuals are not expected to help to pay the costs of the climate transition. Yet, individuals with incomes above the development threshold- by stipulation of GDR, the global consuming class- are thought of as having realized their right to development (Baer et al. 2008). Because of this, under GDR, they must shoulder the responsibility of curbing global carbon and the costs of adaptation from unavoidable climate change and compensation for climate damages (Baer et al. 2008).

Although some governments and organizations have endorsed either C&C or GDR, these frameworks have not yet been seriously considered by governments as the basis for setting emissions reductions commitments during recent climate change negotiations despite high levels of interest in these two approaches among non-government organizations. In fact, most nations have continued to avoid linking their commitments to greenhouse gas emissions reduction to levels that take equity into account.

'Contraction and Convergence'

An equal per capita allocation, the ultimate goal of C&C, would be consistent with principles of justice because: (a) it treats all individuals as equals and, therefore, is consistent with theories of distributive justice, (b) it would implement the ethical maxim that all people should have equal rights to use global commons, (c) it would not be inconsistent with the widely accepted polluterpays principle, except perhaps with historical emissions, and (d) it could recognize the need of developing countries to increase their emissions to meet the basic needs of their citizens by negotiating when the convergence date would need to be achieved. Before allocating any carbon budget- a budget necessary to achieve a safe global atmospheric concentration of greenhouse gases on the basis of equal per capita allocations- a case can be made that per capita emission levels should be adjusted to consider historical cumulative emissions. C&C has been criticized on the basis of its failure to deal effectively with historical emissions; a feature of C&C that could mean poor nations have insufficient levels of greenhouse gas emissions to allow them to use fossil fuels to economically grow out of poverty. Proponents of C&C have proposed some adjustments to C&C to deal with this limitation, including adjustments to the date of convergence and increased funding for adaptation to deal with this problem. And so as adjusted, C&C satisfies ethical scrutiny and can be seen as a way of operationalizing the meaning of equity under UNFCCC.

Greenhouse Development Rights

The GDR framework discussed above also satisfies the minimum ethical criteria for allocating targets for national greenhouse gas emissions in that differences between national targets are based upon ethically relevant criteria, including basic needs of poor nations for economic development, the economic capacity of rich countries to invest in greenhouse gas-friendly technologies, and historical emissions considerations.

Yet GDR is vulnerable to the criticism that the criteria it follows for determining economic prosperity levels- and, therefore, emission reduction obligations (for example the proposed $7,500 economic prosperity level that exempts some below it from emissions reduction targets)- are so arbitrary as to raise questions of distributive justice.

Others have criticized GDR on the basis of its attempts to solve not only climate change, but also inequitable economic development. In so doing, GDR conflates two problems in such a way that it makes political agreement very unlikely (Kraus 2009). Kraus argues:

In order to make GDRs fully operational, nations need to agree upon a number of matters including the emergency emissions trajectory, the precise level of the development threshold, the year when responsibility starts, the formula to calculate the RCI, and the respective weights of capacity and responsibility .... This reduces the transparency of the GDRs concept and significantly increases the necessary amount of data. Compared to GDRs, C&C has a higher degree of institutional feasibility. Due to its simplicity, C&C only requires data about emissions and population numbers of all nations. (Kraus 2009)

Because of the increased complexity of negotiations that would be required to implement GDR, Kraus believes it is not politically feasible. Ethics would not support a formula that is almost impossible to implement. Of course, proponents of GDR deny that complexities of GDR create practical barriers to its adoption and implementation. And so GDR passes ethical scrutiny, although some practical problems need to be answered.

Reviews

Climate change raises some of the most profound ethical issues of our time. And yet, for thirty years our policy responses have evaded comprehensive ethical analysis. This book puts an end to this 'grave and unjust omission. However, the outstanding contribution of this book is its explanation of how ethical considerations can bring moral responsibility to the forefront of climate policy and action.

Prue Taylor, University of Auckland, New Zealand

Don Brown navigates the troubled waters of climate change denial. He deconstructs the cynical efforts by vested interests to pollute the public discourse by means of a climate change disinformation campaign. Brown also makes a compelling argument that limiting carbon emissions and mitigating climate change is the ethical imperative of our time.

Michael Mann, Pennsylvania State University, USA

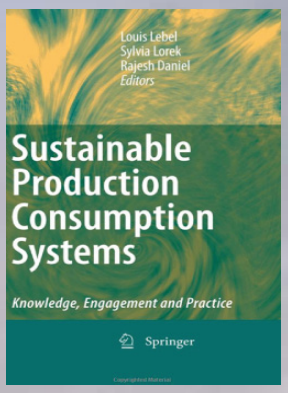
In this fascinating book, Donald A. Brown draws on his vast experience to explore one of the great ethical issues of our time, and provides recommendations about how to bring ethical issues into the formulation of global warming policy responses.

Richard Alley, Pennsylvania State University, USA

Climate change is now the biggest challenge faced by humanity worldwide and ethics is the crucial missing component to the debate. The climate change threat is caused by the wealthiest of the world's population putting the most vulnerable at risk. The ethical dimension of climate change is therefore crucial, as the victims can only hope that those responsible for climate change will appreciate their obligation to the rest of the world and reduce their emissions accordingly. This book examines why a thirty-five-year discussion of human-induced warming has failed to acknowledge fundamental ethical concerns, and subjects climate change's most important policy questions to ethical analysis. Climate change is a global problem that requires a global solution, and given that many nations refuse participation due to perceived inequities of an international solution, this book explains why ensuring that nations, sub-national governments, organizations, businesses and individuals acknowledge and respond to their ethical obligations is both an ethical and practical mandate. The book examines the reasons why ethical principles have failed to gain traction in policy formation and recommends specific strategies to ensure that climate change policies are consistent with ethical principles.

It is the first book of its kind to go beyond a mere account of relevant ethical questions to offer a pragmatic guide to how to make ethical principles relevant and integral to the world's response to climate change. Written by Donald A. Brown, a leading voice in the field, it should be of interest to policy makers, and those studying environmental policy, climate change policy, international relations, environmental ethics and philosophy.

Donald A. Brown is Scholar in Residence on Sustainability Ethics and Law at Widener University School of Law, USA.
http://www.routledge.com/books/details/9780415625722/



Nothing less than a new global compact is necessary, one where the over-consumers of the world deliver significant reductions in resource throughput and material accumulation. this in order to create "ecological space" for increasing consumption by the world's poor - and where, in turn, the global under-consumers explore development paths of low-consumption high-prosperity living. This is ***'Contraction and Convergence'*** *on a grand scale: Contraction of the consumption by the rich as the foundation for the convergence of consumption levels by all at some sustainable level.*

At first blush, any talk of contraction and convergence seems hopelessly naive. ("You'll never get the rich to cut back." is one reflexive response; "the poor will never show restraint" is another: Contraction and Convergence requires massive value change or some deep, mobilizing crisis" and "Americans will never sacrifice without a crisis" are other common reactions.)

It's no wonder that most people who work on issues of sustainable consumption and production shy away from the question of "how much is enough?' Where, after all, are the potent research questions - those that generate grants, drive publications, or influence policy - if the desire for ever-escalating consumption is hard-wired in the human psyche or part of deeply held value sets? Who aspires to research and activism that is intrinsically coercive, or that would promote policies of reduced consumption that fly in the face of human desire?

Better, many conclude, to focus on "realistic" and tangible responses to ecological overshoot, such as the development of new production technologies capable of accommodating escalating consumption and lower environmental cost, or economic instruments that might shift consumption toward more environmentally benign products, or education and public-information projects that might, over time re-shape values. And indeed, this is the bulk of the work now occurring under the flag of "sustainable consumption."

What appears to be idealistic or naive is, alas, coldly realistic.

Cementing an Environmental Politics of Time Famine

For at least two important reasons, major environmental NGOs in the US have been slow to incorporate time politics" into their educational and policy agendas. Doing so would have diluted their core message of environmental protection during, a time of unusual government hostility toward environmental protection. It may have also alienated supporters for whom the connection between time famine and overconsumption is difficult to see. However, as issues of environmental well-being become increasingly linked to the dynamics of consumption. US environmentalism must become more open to confronting the fundamental drivers of overconsumption. TB YT's connection of "vacation rights" to coo-travel and nature appreciation is a first, critical step toward cultivating such openness.

*Moving beyond this first step won't happen easily or automatically. Recent voices within the US environmental community argue. For example, that "Apollo project" programs to develop new technologies of production and consumption must occupy the center of any move towards '****Contraction and Convergence'.***

As tantalizing as these possibilities might be, they divert attention from the drivers of consumption, & the ways in which structural change in work—leisure arrangements can slow the maddening treadmill of work & spend. If mainstream environmentalism is to stay focused on the connections between overwork & overconsumption, it needs considerable help from the research community, in the following 3 ways

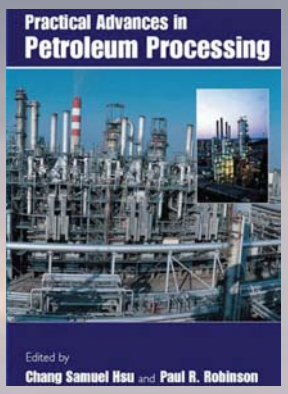
- *Building on "Vacation Rights" The "Right2Vacation- initiative argues that more paid vacation time will lead to lower work stress, reduced binge vacationing, higher levels of local civic participation, deeper connection to and appreciation of) local and regional environmental assets, and a growing political awareness of the benefits of trading income (and consumption) for leisure. These arguments are plausible on their face and enjoy some empirical support. Supporting research, however, is spread across several disciplines, dated, ill-matched to contemporary environmental concerns, or insufficiently robust to inform or motivate ambitious policy commitment by major environmental groups (and other political actors). There are significant opportunities, then, for the research community to synthesize and extend existing knowledge about the impact of extended paid vacation on consumption, travel, and the cultivation of civic and environmental sensibilities. This work could begin with a review of the varied literatures to develop a "state of knowledge" overview and assessment. Further work might explore the interplay between additional vacation time and environmentally optimal outcomes, or identify mechanisms for framing or institutionalizing vacation time in ways that foster high-leisure, low consumption activities.*
- *Conceptual Brush-Clearing Regarding "Sacrifice" Do some kinds of reductions in material consumption yield increased happiness, while others do not? Probably so, but talking easily and naturally about these two categories proves difficult in a political and linguistic environment that reflexively equates all consumption reductions with dire sacrifice. Lacking are clear conceptual frameworks and an everyday language, supported by compelling everyday examples, that would allow policyrria.kers and environmental groups to easily distinguish (for themselves and a sometimes skeptical public) reductions in material throughput that are happiness expanding from those that arc not. Right2Vacation and TBYT are experiments in developing this sort of language — but these efforts remain less than intuitive, and their power over the popular vernacular of environmentalism remains unclear. What sorts of language and frames best convey the possibilities of reduced consumption in. service of human happiness?*
- *Animating the "Base" TBYT and Rights Vacation are policy extensions of the voluntary simplicity movement. In some ways, both initiatives should have taken off long ago. After all, the available data suggest that at least a quarter of Americans are fundamentally sympathetic to notions of voluntary simplicity and time famine. The dilemma is that this base group of simplifiers sees political change as a function of individual acts of frugal consumption rather than the coordinated exercise of citizen power (another example of this can be found in Chapter 3, this volume). How can this group be "turned" toward a deeper engagement with citizen action, in support of TBYT's agenda? Thatss a surprisingly difficult question to answer. There has been scant systematic assessment in the last decade of public attitudes toward simplicity and entry points for fashioning action coalitions within this population. Little is known about the groupings and composition of key social and culture groups, in either (or both) the global north and south, that may be most receptive to a message of consumer restraint, and thus most readily enlisted in a political program of policy change. The largest marketing-research organizations probably have some of this information; one research task, then, for any drive — national or transitional — toward a global norm of consumer restraint is to discern how to leverage these data.*

Another task is to develop a rough data base of the many research encleavors aimed at identifying those global constituencies most undermined or diminished by time famine and the decline of leisure time and civic consciousness.

Perhaps by bringing together, in crude analytic ways, the conclusions and data of these myriad groups, important patterns will emerge that will facilitate a networking of key groups around the world and a joint identification of critical, and perhaps counterintuitive, constituencies.

To what extent can determined activism bolstered by strategic research undermine the view that happiness is linked to ever escalating consumption? How might public policy and new institutions that offer individuals and communities opportunities to consume less in ways that enhance immediate happiness and overall life satisfaction best be identified, and then injected squarely in the midst of public conversation? Where do the pressure points for a shift to sustainable consumption lie in a politics of the global north that celebrates consumption? And how, for the purposes of this volume, might additional research facilitate meaningful political change in support of an agenda of ***'Contraction and Convergence'****? This chapter touches on these questions by exploring "Take Back Your Time (TBYT), a public- policy initiative now underway in the United States that aspires to build a participatory politics of consumption reduction. Built around the notion of "time famine," TBYT argues that politically constrained choices around work and leisure in the United States make it especially difficult for United States (US) consumers to exercise restraint in their consumption choices. If offered alternate choices, especially choices regarding the structure of work, Americans would consume less in the rational pursuit of their own happiness. Even modest success of TBYT's agenda are an important step in a politics of* ***'Contraction and Convergence'*** *that rejects a discourse of sacrifice & deprivation.*

Sustainable Production Consumption Systems: Knowledge, Engagement & Practice
Louis Lebel, Sylvia Lorek, Rajesh Daniel
Louis Lebel, Sylvia Lorek, Rajesh Daniel http://www.amazon.co.uk/gp/reader/9048130891/ref=sib_books_pg?p=S00N&keywords=contraction+and+convergence&ie=UTF8&qid=1300305844#reader_9048130891



Plan B for Climate Control: Contraction and Convergence

In 2002, the United States refused to ratify the Kyoto Protocol. Australia soon followed suit. Near the end of 2003. the European Union, the Protocol's biggest supporter, reported that only two member states — Sweden and the UK — were on course to meet their targets. An article in New Scientist by Fred Pearce summarized his view of the Kyoto Protocol at the end of 2003.

"The Kyoto Protocol is dying a death of a thousand cuts," he wrote. These blows follow a history cif bureaucratic squabbling and political posturing by the Protocol's signatories, and many observers now fear that it has been damaged beyond repair. So does the world have a Plan B for bringing the emissions of greenhouse gases under control?

The answer is yes, it goes by the name ***'Contraction and Convergence'*** *or C&C. The idea has been around for a decade, but lately it has been gaining ever more influential converts, such as the UK's Royal Commission on Environmental Pollution, the UN Environment Programme, the European Parliament and the German Advisory Council on Global Change, which last week released a report supporting the idea..."*

Pearce goes on to say that while Kyoto has become a convoluted, short- term measure to mitigate climate change. C&C could provide a simple, fair, long-term solution. Under C&C, per capita emissions will converge, year by year, towards a common target_ In effect, after the target date, every person in the world would have an equal right to pollute.

"On the face of it,' Pearce says, "C&C seems anathema to countries like the US, which would have to buy large numbers of pollution credits in the early years. But it does meet most of the criticisms made by the Bush administration of the Kyoto protocol."

In particular, Bush called it unfair that Asian trading competitors_ as developing nations, had no targets. Under C&C every nation would ultimately have the same target. Some, such as China, already have per-capita emissions in excess of targets they might have to meet by mid-century.

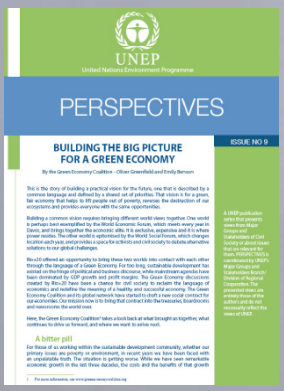
"But perhaps the greatest attraction of C&C is the complete break it would make from the horse-trading, short-term fixing and endless complications that have plagued efforts to bring the Kyoto Protocol into effect."

If the past can predict the future, polities will continue to dominate the debate about global warming until it becomes a clear and present danger If so, we hope there will still be time to do something about it.

Practical Advances in Petroleum Processing, Volume 1
edited by Chang S. Hsu, Paul R. Robinson

http://books.google.co.uk/books?id=JaOq7QxCWkYC&pg=PR28&dq="Contraction+and+Convergence"+Rio&hl=en&sa=X&ei=P28DUqvVNeqn0QXJvIGADw&ved=0CEQQ6AEwAQ#v=onepage&q="Contraction and Convergence"

Rio&f=false


UNEP
United Nations Environment Programme

PERSPECTIVES

ISSUE NO 9

BUILDING THE BIG PICTURE FOR A GREEN ECONOMY

By the Green Economy Coalition - Oliver Greenfield and Emily Benson

This is the story of building a practical vision for the future, one that is described by a common language and defined by a shared set of priorities. That vision is for a green, fair economy that helps to lift people out of poverty, reverses the destruction of our ecosystems and provides everyone with the same opportunities.

Building a common vision requires bringing different world views together. One world is perhaps best exemplified by the World Economic Forum, which meets every year in Davos, and brings together the economic elite. It is exclusive, expensive and it is where power resides. The other world is epitomised by the World Social Forum, which changes location each year, and provides a space for activists and civil society to debate alternative solutions to our global challenges.

Rio+20 offered an opportunity to bring these two worlds into contact with each other through the language of a Green Economy. For too long, sustainable development has existed on the fringe of political and business discourse, while mainstream agendas have been dominated by the "business as usual" model. The Green Economy agenda created by Rio+20 have been a chance for civil society to reclaim the language of economics and redefine the meaning of a healthy and successful economy. The Green Economy Coalition and its global network have started to draft a new social contract for our economies. Our mission now is to bring that contract into the boardrooms, boardrooms and newsrooms the world over.

Here, the Green Economy Coalition* takes a look back at what brought us together, what continues to drive us forward, and where we want to arrive next.

A bitter pill

For those of us working within the sustainable development community, whether our primary focus are poverty or environment, in recent years we have been faced with an unpalatable truth. The situation is getting worse. While we have seen remarkable economic growth in the last three decades, the costs and the benefits of that growth

1 For more information, see www.greeneconomycoalition.org

A UNEP publication series that presents views from Major Groups and Stakeholders of Civil Society or about issues of Major Groups and them. PERSPECTIVES coordinated by UNEP's Major Groups and Stakeholders Branch/ Division of Regional Coordination. The proposed views are entirely those of the authors and do not necessarily reflect the views of UNEP.

Economic Growth – the contentious topic that demands improved dialogue and understanding. The topic of 'economic growth' is a nuanced and highly charged debate depending on geography and stakeholder group. The perspectives are well known: -

For many in the environment movement, if humanity is already living beyond planetary limits, a ***contraction of resource*** *extraction needs to be coupled with ecosystem restoration. For these stakeholders, the science points to an imperative for negative economic growth.*

For most economic and business models, and therefore national governments, growth is a vital means by which to balance national debts, remain competitive, pay taxes and wage bills, and have surpluses to re-invest. 'No growth' is therefore not an option.

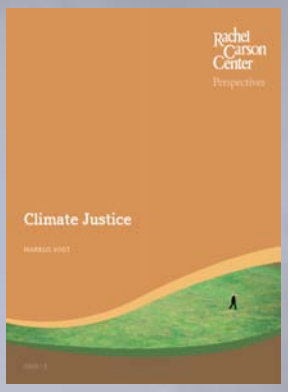
For much of the developing world, struggling under the burden of poverty, economic growth is needed in order to raise standards of living. Economic growth is therefore also essential.

There are a number mutually reinforcing ways to tackle this impasse. The concept of 'green growth' is helpful but to live within limits necessitates a net reduction in brown economy.

*The argument for '****Contraction and Convergence'*** *is also helpful – the developing world needs to grow economic activity, the developed world needs to grow economic solutions that replace resource intensive solutions.*

This is prompting the emergence of the concept of a circular economy – where closing the loop around production and consumption will create innovation and growth in new industries and services, with the explicit purpose of reducing material inputs and wastes. Another way into the argument is that we need to redefine growth itself to mean growth of quality. This is why the beyond GDP agenda is so vital. An example of beyond GDP economic growth would be to develop new markets and solutions for natural system management – which creates employment, revenues, taxes, and improves natural systems.

Finally, by getting stuck on the horns of 'grow' or 'don't grow', we risk missing an important point. A more equitable and efficient distribution of assets, can help provide for more people's needs with the same resources we use today. That is a further reason why Green Economy, beyond the moral imperative, must champion equity.



UNEP Perspectives; BUILDING THE BIG PICTURE FOR A GREEN ECONOMY Green Economy Coalition; O Greenfield & E Benson
http://www.gci.org.uk/Documents/ENVIRONMENT_PAPERS_DISCUSSION_9.pdf Contraction and convergence

*One of the most interesting concepts for a common contract on CO2 justice is currently debated under the title **'Contraction & Convergence'** (C&C).*

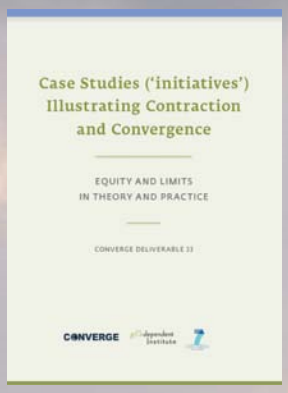
This combines a contract which fixes an upper limit for global CO2 emissions (contraction) with a gradual introduction of a distribution of emission rights according to egalitarian principles (convergence).

Basis for the fixing of a global upper limit is consensus within society about level of the ecological risk that can be justified. However, ecological risks can neither be calculated from a natural threshold nor predicted with any certainty. And yet there is a broadly accepted consensus within current political negotiations that global warming by 2°C or a 450ppm concentration of CO2 can be taken as just such a threshold. 56 Following the principle of risk avoidance the C&C concept uses this rather low upper limit, although climate researchers disagree as to whether it is still a realistic goal.

For the process of negotiating CO2 reduction rates the C&C concept accepts the historical distribution as the basis for proportionally-fixed contributions (grandfathering). This is however only the starting point for what then becomes a process with fixed and binding stages, aimed at gradually drawing closer to an egalitarian pro capita distribution of emission rights. The grandfathering principle eases the transition for countries with a high level of emissions. It can be justified ethically as property protection and pragmatism.

"And while a convergence that begins with grandfathering can be ethically justified as easing the transition on high-emitting countries, consistency would seem to demand a similar 'back end' mechanism by which emission in low-emitting countries would be allowed to temporarily overshoot the global average, if, that is, 'easing the transition' is indeed the justification for initial grandfathering."

The post-Kyoto negotiations have not yet reached a decision between the two types of model described here as contraction and convergence and responsibility and capacity. C&C offers a realistic opportunity for strategic north-south alliances and is currently enjoying growing support, for example in Great Britain.



Climate Justice - An ethical analysis of the conflicts, rights and incentives surrounding CO2 - Prof. Dr. Markus Vogt, LMU Munich
http://www.gci.org.uk/Documents/Climate_Justice_Vogt_RC.pdf

Recommendation

SCAD takes this opportunity to congratulate and thank everyone who is involved in the preparation of the CONVERGE initiative e-book for the use of the wider public. We, SCAD, as part of the CONVERGE team want to ensure CONVERGE reaches the public in our region and the whole country. SCAD initiates various environmental and community engagements to create a just society in the region. Providing equal opportunities for every member of society is ensured through SCAD sustainable development initiatives.

To mitigate climate change and other environment-related problems in a rapidly growing country like India is a herculean task. The growth of the country is decided by various factors and the issue needs to be addressed globally. "Climate change is a global challenge to which global solutions are required."

With the support of The Converging World Charity UK & the Schumacher Institute Bristol, & other charities & development agencies in UK & Europe, SCAD initiates various sustainable energy and development programmes.

*We strongly believe that equity-based models such as **Contraction and Convergence** can play a vital role in helping to manage global environmental problems. Contraction and Convergence m means that every country should bring its per capita emissions to a level which is equal to all other countries.*

It is intended to form the basis of an international agreement which will reduce carbon dioxide emissions to avoid dangerous climate change, carbon dioxide being the gas that is primarily responsible for changes in the greenhouse on Earth, We also strongly believe that a lot of initiatives need to be done on stabilizing atmospheric CO2 concentrations at 3so parts per million by volume.

We also agree with the importance of the following words:

"No one owns the atmosphere, yet we all need it. So we can assume that we all have an equal right to its services - an equal right to pollute on the basis of the minimum cuts in total carbon dioxide pollution needed to stabilize the climate,"

Taking this into consideration, SCAD wants to help create more equitable models for managing the benefits and costs of resources that are in line with what we know about planetary limits - which will ensure a safe living environment for the community, ensure women's rights, reduce food miles by growing local food through kitchen gardens, includes afforestation programmes to cope up with the climate adaptation methods, water harvesting to overcome desertification and sustainable energy initiatives to ensure less carbon is emitted.

We are sure that the CONVERGE team is documenting community initiatives like this into CONVERGE deliverables which can be used by the wider public, We are extremely happy that we are part of the team and also members from the developing country to make Convergence into a model for a future sustainable world.

Dr. S. Cletus Babu Chairman SCAD

A very brief review of literature: the background

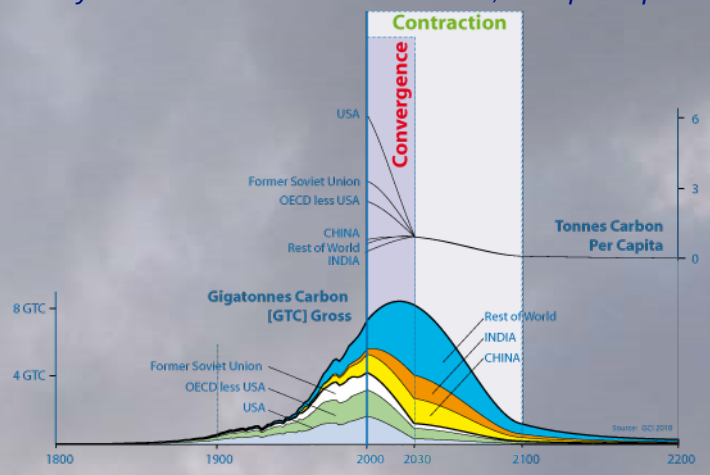
'Convergence' has been a subject of study in economics literature since the mid 1980's in terms of trends in distribution of world per capita income and productivity (Abramovitz 1986, Baumol 1986, Sutcliffe 2005), However, the concept of Contraction and Convergence TM to which we refer in this document and the CONVERGE project originated with Aubrey Meyer and The Global Commons Institute (GCI).

***'Contraction and Convergence'** TM (C&C TM) is a global climate policy framework which has been proposed to the UN since 1990 by the Global Commons Institute as one way to manage and reduce anthropogenic carbon dioxide through a burden sharing approach (Meyer woo). C&CTM proposes combining recognition of planetary limits with an equity approach to distribution in the following format: (a) Establishing a full-term contraction budget (a 'cap') for global emissions consistent with stabilising atmospheric concentrations of greenhouse gases (GHGs) at a pre-agreed concentration maximum deemed to be safe by the UNFCCC1, and: (b) The international sharing of this budget as a pre-distribution of entitlements that result from a negotiable rate of linear convergence to equal shares per person globally by an agreed date2. The framework would be given flesh and blood through the setting of interim carbon reduction targets, drawing up of national de-carbonization strategies and a carbon trading scheme to allow a degree of flexibility to account for national differences in carbon intensity.*

That the C&C TM concept has gained substantial traction and recognition since the foundation of the Global Commons Institute in 1990 in the national and international policymaking and decision-making arena can be recognised in the following quotation from the executive secretary of the pre-eminent international climate change treaty, The United Nations Framework Convention on Climate Change;

'Achieving the goal or the climate treaty [to stabilize Greenhouse gas emissions] inevitably requires Contraction &Convergence" (Waller Hunter, UNFCCC Executive Secretary, in CCP, p.1).

C&CTM has been both implicitly and explicitly credited with influencing both the Kyoto Protocol and its successor, The principle of C&CTm has



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

been formally recognised in European Parliament resolutions (European Parliament 1998) and is supported by numerous policy makers, academics, NGOs and lay people.

One of the advantages of the C&C TM proposal is the recognition that any effective and sustainable response to slowing the rise in carbon dioxide levels in the atmosphere inevitably requires addressing the issue of equity - who should reduce carbon emissions and by how much? C&CTM effectively slices the Gordian knot of allocating responsibility for cutting carbon dioxide emissions by proposing a global per capita allocation solution (a so-called 'strong equity' approach) which also takes account of the issue of the 'historical responsibility' of industrialised nations through its proposal for negotiated rate of convergence. Many scientists and pol icy makershave come to consider this approach to b e not only the mostequitable but al so the most pragmatic approach to managing climate change when compared to other carbon reduction regimes: according to Bohringer and Welsch (2004; see also Berk and den Elzen 2 0 01) who examined the implications on economic welfare ofvarious approaches to emissions reduction "a Converge approach to crass ions tracl ing stands oat for offering thedeveloping countries substant iai incentives for participation in the international greenhouse gas abatement effort without imposing excessive burdens on industrialised countries" (p. 21.), and is therefore the most acceptable arrangement.

Despite this positive review, criticisms and contrasting views of the viability of the C&C TM approach are easy to find, and generally concern procedural issues (i.e. concerns with implementation) although substantive criticism also exist'. Allocation of carbon emission entitlements/the nature of burden-sharing or differentiation of future commitments tends to be highly controversial, The results of adopting a strong equality (per capita) approach to emission rights with a short time frame for emission contractions could induce deep structural changes to the global economy, which in some arenas has caused doubts about how realistic it is for a C&CTM approach to be accepted in the timeframe needed to prevent substantial climate-change induced damage (Aldy 2005).

The diversity of negotiating positions over the emission rights of nation states was formally documented in article 3.1 of the LINFCCC, which states that developed and developing countries have "common but differentiated responsibilities" and is reflected in the much lamented failure to agree on internationally binding carbon contraction goals at the Copenhagen Summit in 20092.

The C&C TM approach thus runs counter to current policymaking efforts which have tended to focus on an 'increasing participation/ graduation' approach to meeting carbon targets by simply extending the current carbon regimes to encompass more countries based on ad hoc criteria or pre-defined rules.

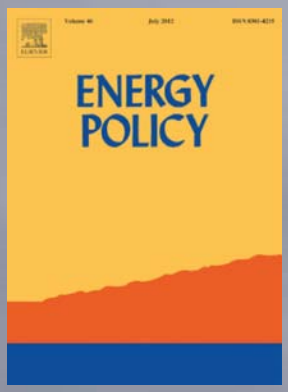
*A fuller comparison of the **'Contraction and Convergence',** Tm approach contrasted with greenhouse gas development rights is provided by Kraus (2009). A further criticism that has been levelled at C&CTM is that per capita based allocation rights might promote national pro-population growth policies.*

As a solution to this, Meyer (2000) suggests a cut off year after which population growth is no longer factored in to carbon allowances. Despite the above criticisms, the potentially severe impacts of climate change (IPCC 2007) and the resounding lack of success of alternative approaches to decreasing carbon emissions continue to make the C&C TM approach attractive. Furthermore, the need to recognise planetary and ecosystem limits and ensure more equal access to resources and the benefits they provide (as well as to more equally share burdens) has become more pronounced'. The C&C TM proposition suggests a way to meet these needs.

To summarize, the CONVERGE project focus on equity and equality based approaches to managing resources derives partly from the carbon reduction framework called 'Contraction and Convergence' (C&C TM), as described above. Our most important objective (as shown in Figure 5) is to link the scientifically-validated need to reduce (i.e. to contract) resource use with a justice-based approach to apportioning the responsibility for doing so (to converge).

Case Studies Illustrating Contraction and Convergence Equity & Limits in Theory & Practice
Vadovics E Milton S & the CONVERGE Project Team

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

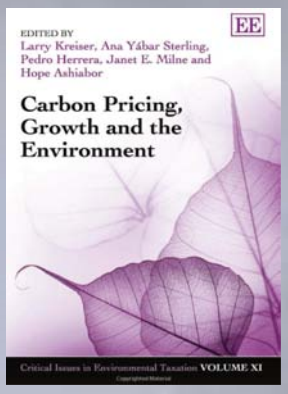


*In the **'Contraction and Convergence'** (C&C) regime (Meyer, 2000), all countries participate with quantified emission targets. In a first step, countries agree on a path of future global emissions that leads to an agreed long-term stabilisation level for greenhouse gas concentrations ('contraction'). In a second step, the targets for individual countries are set so that per capita emissions converge from the current level of the country to a level equal for all countries within a convergence period ('convergence'). The convergence is calculated in a way that resulting global emissions follow the agreed global emission path. This regime is based on both the sovereignty and egalitarian equity principles, as first allowances are based on current emission levels but in time, equal emissions per capita is the dominant factor on which allowances are based. As the problem definition is based on resource sharing, some developing countries could be allocated more (surplus) emission allowances than their expected baseline emissions.*

Emission allowances and mitigation costs of China and India resulting from different effort-sharing approaches

Bas J. van Ruijven a,n, Matthias Weitzel b, Michel G.J. den Elzen a, Andries F. Hof a, Detlef P. van Vuuren a,c, Sonja Peterson b, Daiju Narita b a PBL—Netherlands Environment Assessment Agency, P.O. Box 1, 3720 BA Bilthoven, The Netherlands b Kiel Institute for the World Economy, Hindenburgufer 66, D-24105 Kiel, Germany c Utrecht University, Department of Geosciences, P.O. Box 80021, 3508 TA Utrecht, The Netherlands

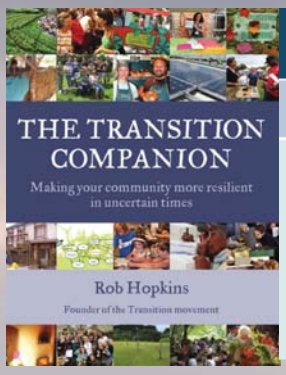
Energy Policy
http://www.gci.org.uk/Documents/Energy_Policy.pdf



While the optimal level of pollution is impossible to determine exactly by economics, cost—benefit analyses can help approximating a reasonable level (Stern 2007). In any case, the cap must create scarcity in order to implement a price signal for individual emitters' internal emission level optimization. Greater scarcity increases the incentives to innovate. By fixing an adequate cap size, also, the open access resource is transformed into state property and the scale decision is made independent of distribution and allocation, allowing the government to prevent abuses of the resource. In addition, other criteria, such as environmental necessities or fairness criteria, can be used, thus lowering decision-making costs. From an ecological point of view, the cap must be in line with the needs for global climate protection, e.g. the 2'C target. By using the Budget Approach (WBGU 2009), a total allowable amount of emissions of 1,100 billion tons of CO2eq for the period of 1990 to 2050 can be calculated, which, due to emissions in the past, !eaves only 600 billion tons of emissions for the period 2010 to 2050. If, then, for justice reasons (equality, polluter-pays principle) equal rights to use natural resources for each and every citizen or the world are accepted, national emission caps can be derived immediately, and even historic responsibilities can be accounted for following the polluter-pays-principle.

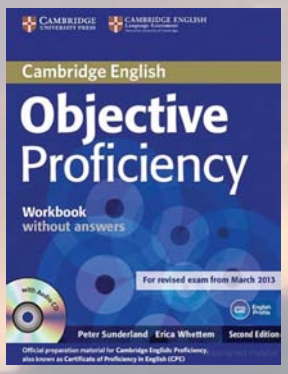
If, however, intra- and inter-generational justice should apply, the ***'Contraction & Convergence' (****Meyer 2000) appears preferable, in which the total number of emission allowances contracts from the status quo to an ecologically acceptable level, and per-capita emission rights converge. This would result in a steep decrease in the cap sizes of industrialized countries, while less developed countries might even increase their emissions. Anyway, a stringent absolute cap would support inter-generational justice, because future generations would be safeguarded against dramatic changes in their livelihood. However, all too stringent caps may interfere with intra-generational justice, for example, because due to the regressive distributional effects of higher energy prices, poorer households may be faced with high burdens. Again, the Contraction and Convergence proposal would, at least to a large extent, take account of those restrictions.*|

Carbon Pricing, Growth and the Environment
Larry Kreiser, Ana Yabar Sterling
http://www.amazon.co.uk/Pricing-Environment-Critical-Environmental-Taxation/dp/1781009376



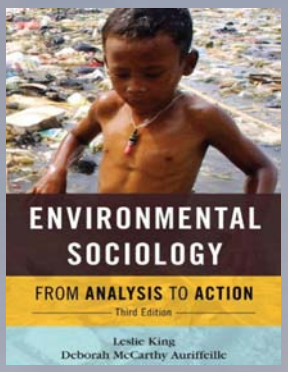
How bottom-up and top-down responses intertwine

International	National	Local
Strong international climate change protocols, Contraction and Convergence, a moratorium on biodiesel production, Oil Depletion Protocol, rethinking economic growth, biodiversity protection, a realistically high price on carbon.	Strong climate change legislation, Tradeable Energy Quotas, a national food security strategy, devolution of powers to local communities, support for the relocalisation of industry.	Transition initiatives, Energy Descent Plans, Climate Friendly Communities, Community Supported Agriculture (CSA), land trusts, credit unions, locally owned energy-supply companies (ESCOs).



Challenge new green consumerism, you become a prig and a party pooper. Against the shiny new world of organic aspirations you are forced to raise boring restraints: carbon rationing, ***'Contraction and Convergence',*** *tougher building regulations, coach lanes on motorways. No newspaper will carry an article about that. But these measures, and the long political battle that is needed to bring them about, are unfortunately what is required.*

Cambridge English Objective Proficiency Workbook
http://books.google.co.uk/books?id=DhLO462UxsgC&pg=PA20&dq="Contraction+and+Convergence"+Shopping&hl=en&sa=X&ei=3Cr-UdfJHojY0QWhxIHwBg&ved=0CD0Q6AEwAA#v=onepage&q="Contraction and Convergence" &f=false

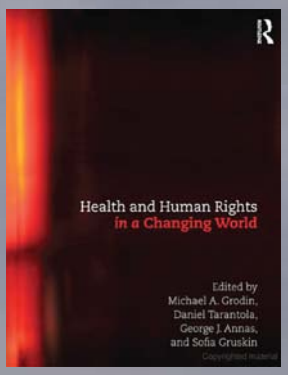


Globally, the struggle, of course, has to take into account the reality of economic and ecological imperialism. The allowable carbon-concentration limits of the atmosphere have already been taken up as a result of the accumulation of the rich states at the center of the world system. The economic and social development of poor countries is, therefore, now being further limited by the pressing need to impose restrictions on carbon emissions for the sake of the planet as a whole—despite the fact that underdeveloped economies had no role in the creation of the problem. The global South is likely to experience the effects of climate change much earlier and more severely than the North, and has fewer economic resources with which to adapt.

All of this means a non-imperialistic, a more sustainable, world solution depends initially on what is called ***'Contraction and Convergence' -*** *a drastic contraction in greenhouse gas emissions overall (especially in the rich countries), coupled with the convergence of per-capita emissions in all countries at levels that are sustainable for the planet." Since, however, science suggests that even low greenhouse gas emissions may be unsustainable over the long run, strategies have to be developed to make it economically feasible for countries in the periphery to introduce solar and renewable technologies— reinforcing those necessary radical changes in social relations that will allow them to stabilize and reduce their emissions.*

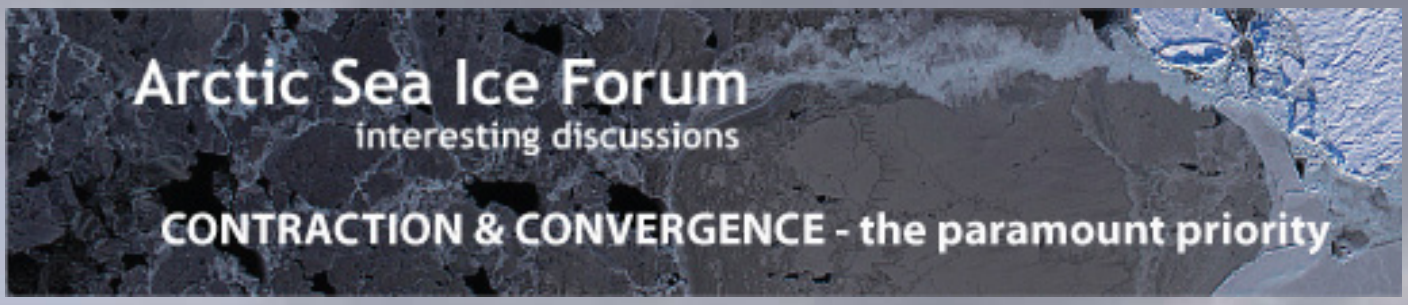
For the anti-imperialist movement, a major task should be creating stepped-up opposition to military spending [amounting to a trillion dollars in the United States in 200?) and ending government subsidies to global agribusiness—with the goal of shifting those monies into environmental defense and the meeting of the social needs of the poorest countries, as suggested by the Bamako Appeal." ***It must be firmly established as a principle of world justice that the wealthy countries owe an enormous ecological debt to poorer coun-tries, due to the robbing by the imperial powers of the global commons and the pillage of the periphery at every stage of world capitalist development.***

Environmental Sociology
Leslie King Deborah McCarthy Auriffeille
http://books.google.co.uk/books?id=MXZWaTfnioEC&pg=PA418&dq="Contraction+and+Convergence"+Precaution&hl=en&sa=X&ei=rbL9UZuwEqqU0AXJ-oDQCg&ved=0CDsQ6AEwAA#v=onepage&q="Contraction and Convergence"&f=false



*The best known rights-based approach to climate change mitigation is the '****Contraction-and-Convergence'*** *[C&C] frame-work presented by the Global Commons Institute [GCI] at the second Conference of the Parties in 1996. The idea, very briefly, was to articulate a long-term mitigation regime that, while reducing the overall amount of greenhouse gas in use over time, would also equalise greenhouse gas emissions per person on a global scale over time. In such a regime, as overall global emissions dropped, the fall would be more precipitate in wealthy countries, while usage in poorer countries would continue to rise for a period in line with their greater development needs—towards convergence between rich and poor countries at some point in the future. Initially, GCI abjured the term "rights" in reference to C&C because they regarded the atmosphere as a global commons that "cannot be appropriated by any state or person". Today, however, GCI claims that C&C "establishes a constitutional, global-equal-rights-based framework for the arrest of greenhouse gas emissions". This appears to be in line with a general shift towards the language of rights in the climate change arena.*

Health and Human Rights in a Changing World
Grodin, Taratola, Annas, Gruskin
http://books.google.co.uk/books?id=cJ2oV0rGhx8C&pg=PA638&dq="Contraction+and+Convergence"+Indigenous&hl=en&sa=X&ei=bbj9UZvnI-mn0QXf8IHoCw&ved=0CDsQ6AEwAA#v=onepage&q="Contraction and Convergence" Indigenous&f=false



'Contraction and Convergence' the paramount priority

May 07, 2013

With the seductive Washington propaganda that with renewables' investment the 'free market' can resolve global warming - despite any fossil fuels locally displaced being bought and burnt elsewhere due to the lack of a climate treaty - there is sadly little public understanding of the actual priorities for action. This thread is intended to address any such confusion here on ASI by focussing on the seminal advance of the climate negotiations via the adoption of the global climate policy framework of
"Contraction and Convergence".

For the authoritative overview of the policy see the Global Commons Institute site www.gci.org.uk *. In essence C&C is about setting a scientifically valid global carbon budget out to 2050, with tradable national allocations of emissions permits declining annually under that budget while they also converge from the present roughly GDP-based shares of global emissions to per capita parity by an agreed date. The permits' tradability between nations allows the essential flexibility for unknown future needs, while also maximizing the rate of investment in the requisite industrial reform and in the adoption of sustainable technologies in developing nations.*

The policy has been promoted in the UNFCC negotiations since 1990, and is now tacitly or explicitly recognized as the "inevitably required" basis of the treaty by many nations and unions, including the EU, Brazil, Australia, India, African Nations' Group, China and many others. The USA is on record in the final hours of the Kyoto negotiations as deflecting the demand from the Africa group and from India for C&C to form the basis of the Kyoto Protocol with the acknowledgement that C&C may be needed for a future comprehensive agreement.

To give an idea of just how much discussion of and publications on C&C is going on at the academic level among those whose expertise is in international relations, global development, public health, ethics, etc, (which can be seen as a proxy measure for the level of diplomatic attention).

Agreeing rates of Contraction & Convergence: - the central challenge of International climate negotiations.

The central challenge of international climate negotiations is to agree upon the rate or contraction and convergence of the per capita emissions of all countries - an approach that was first discussed in the 1990s and has meanwhile become a basic pillar of UNFCCC.

Typical transformation paths computed under the budget constraint implied by the 2°C global warming limit yield total emissions peaking around 2020, decreasing rapidly thereafter to very low values by the middle of the century. The later the emissions peak, the more rapid and challenging the required subsequent rate or decrease. To satisfy realistic contraction and convergence criteria, the emissions of the industrialized countries need to start decreasing immediately in order to accommodate longer emission growth phases for the emerging and less developed economics.

Adherents of the top-down approach argue that the global interdependencies mandate global solutions in the form of binding international climate agreements.

*The most straightforward way to realize equitable **contraction and convergence** trajectories, for example, would be to apply a 'stick' policy in the form of a global cap-and-trade system generalizing various regional or nationaJ cap-and·trade systems, such as the European Emission Trading System (ETS). or similar schemes in the US.*

In the approach proposed by Wicke and Durr-Pucher (2006), for example, each country would be assigned a total number of emission permits proportional to its population, in accordance with the principle of equal per capita emission rights. Countries with low per capita emissions would then be able to sell their initially surplus emission rights to countries with higher per capita emissions, thereby achieving two important objectives: (i) global investments would be attracted into the most effective channels for reducing emissions; (ii) capital and technology would be transferred from the industrial countries to the emerging and less developed countries.

Lewis Cleverdon

*"It follows that the downsizing of ecological footprints to get the world back in accord with environmental limits must necessarily fall very disproportionately on the rich capitalist countries. The only just and sustainable solution is one of **'Contraction and Convergence',** whereby global per capita carbon emissions and ecological footprints are equalized, along with the elimination of unequal ecological exchange."*

The Planetary Emergency
John Bellamy Foster and Brett Clark
http://monthlyreview.org/2012/12/01/the-planetary-emergency

Southport Reporter®

"As is, the UK Climate Act is not fit for purpose"
Southport Reporter Liverpool

THE UK Climate Act (UKCA) has been deemed unfit for purpose by the Green Party as evidence comes to light that the Met Office used flawed modelling, when advising government on the creation of the UK Climate Act and its carbon emissions budget.

The UK Met Office, in conjunction with the UK Climate Change Committee, prescribed a national emissions control regime for the UK [an 80% emissions cut by 2050] as the UK's 'equitable share' of an international agreement mooted to avoid dangerous rates of Climate Change [a 100% emissions cut globally by 2100].

By their own admission, the Act omits major climate-altering feedback effects such as CO2 and CH4 emissions release and atmospheric concentrations rising from melting permafrost. This omission alone is alarming and by definition renders the UKMO's whole prognosis of 'climate-control' inadequate, unreliable and complacent at best.

*Aubrey Meyer, Director of the Global Commons Institute, who devised **Contraction and Convergence** as a solution to dangerous climate change said:- "It is alarming that a whole range of these significant and potentially very dangerous feedback effects are still – after 20 years - being entirely omitted from the UKMO's 'climate models'. Moreover, UKMO is now feeding this work into the preparations for the IPCC 5th Assessment due in 2014. A growing danger of emissions from Permafrost melt for example is that human efforts to control human 'budget-emissions' can become overwhelmed by the accelerating release of the non-human 'feedback emissions' that will occur uncontrollably as the planet warms. To continue making these omissions now, aids and abets the cause of climate-deniers, people who have already rightly been accused of crimes against humanity by James Hansen."*

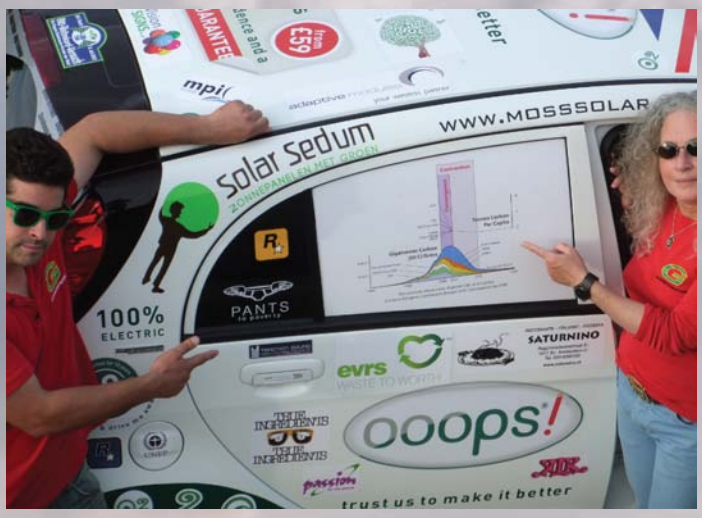
Aubrey Meyer recently gave evidence to the Environmental Audit Committee where he outlined the flawed thinking of the UK Met Office.

*The Green Party with other Green Parties around the world has advocated the policy framework of '**Contraction and Convergence'** [C&C] since 1998. It is widely recognized that the UK Climate Act of 2008 is based on C&C. However, by prescribing contraction by 2100 with convergence by 2050, it asserted rates of C&C that are inadequate and inequitable.*

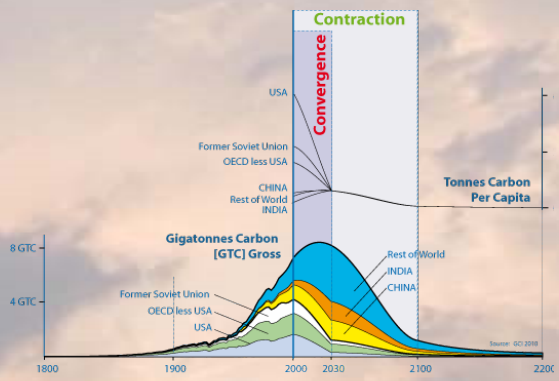
While the C&C Principle is correct, in practice the rates-prescription in UKCA is incapable of generating the international consensus necessary to achieve UNFCCC-compliance. Global emissions contraction must be fast enough to achieve the objective of the UN Framework Convention on Climate Change [UNFCCC] on a precautionary basis [for example 100% contraction by 2050]. Within this, international convergence on equal shares per person must be negotiated to a rate fast enough to satisfy the Convention's Equity Principle by rapidly reconciling the growing gap between over-consumers and under-consumers [for example convergence by 2020 or 2030].

Establishing such an agreement, would free humanity from the international deadlock that has frustrated negotiations for the last 20 years. It would create a new momentum of creativity and common purpose and give future generations better prospects than those they face without it.

Green Motor Sport promotes Contraction & Convergence



Aubrey Meyer's C&C is an emissions management model that relates to the 'objective' and the 'principles' of the United Nations Framework Convention on Climate Change [UNFCCC]. Contraction refers to the 'full-term event' in which the future global total of greenhouse gas [GHG] emissions from human sources is shrunk over time in a measured way to near zero-emissions within a specified time-frame. The example below shows 90% by 2100.



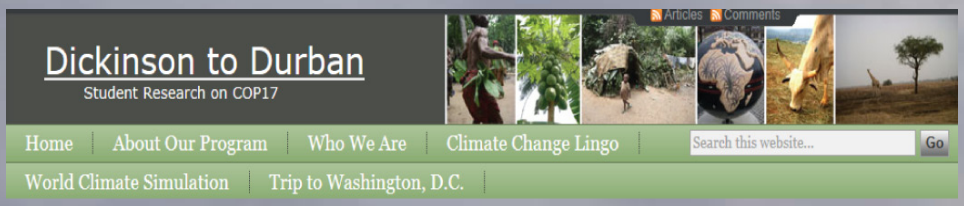
This example shows regionally negotiated rates of C&C

Calculating future emissions contraction, looking at concentrations and sink performance, is a non-random way of responding to the objective of the UNFCCC. Convergence refers to the full international sharing of the emissions contraction-event, where the 'emissions-entitlements' for all countries result from them converging on the declining global per capita average of emissions arising under the contraction rate chosen. Converging at a rate to be agreed - the example shows 2030 - is a non-random way of responding to the principle of 'equity' in the UNFCCC, whilst still meeting its objective. Negotiating the rate of convergence is 'the main equity lever'. ***'Contraction and Convergence'*** *- "C&C has the virtue of simplicity. Equal per capita emissions is a natural focal point. Contestable computations based on economic variables do not need to enter the allocation formula." Professor Ross Garnaut.*

Green MotorSport Limited

Recognised as the first motor sport company to research "Green Motorsport". World leader in environmentally conscious motor sport founded by "Gordon Foat". July 4th 2001. Stimulating & exploiting research into Future Energies and reducing motor sports Carbon Footprint and to bring new Zero Carbon technologies into the market place & make motor sport greener. Our mission is to become the premier motor sport company solely devoted to environmental racing and applied green zero carbon automotive technology. Emphasis on research & testing high power AC and DC electric motors, high power micro processor speed controllers, electronic differential technologies, super fast rapid chargers for electric vehicles, vehicle to grid technology, alternative future energies, electric drive trains, safe high capacity energy storage technologies. Green MotorSport brings technology and environmental issues to everyone's attention making learning about renewable energy and energy efficiency interesting and exciting. It was thought that an environmental indicator was needed to explain and highlight these new emerging technologies. Green MotorSport bridges the technology education gap with its educational concepts.

www.greenmotorsport.com

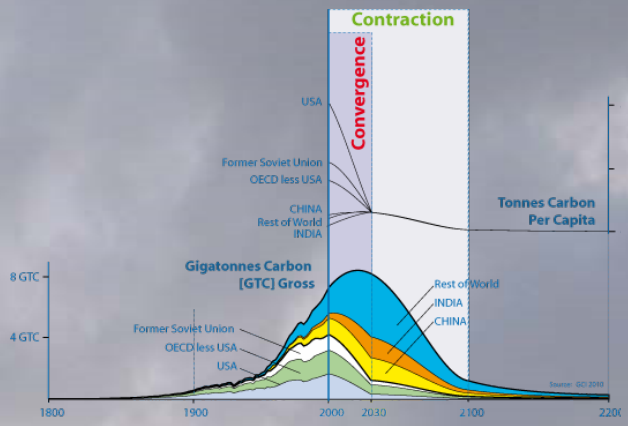


Chapter 5 of A Climate of Injustice by J. Timmons Roberts & Bradley Parks illustrates a set of approaches for allocating greenhouse gas targets. One of the four approaches stood out to me. The strategy in question was proposed by India, China and the Group of 77 and has been endorsed by France, Switzerland and the European Union; it is called the "Per-capita" strategy by Roberts and Parks. This approach is embodied in the emissions management model called ***'Contraction and Convergence'*** *developed by the Global Commons Institute and it was introduced by the Indian government in 1995.*

The concept is very simple. First, a maximum acceptable atmospheric CO2 concentration is calculated. Then, it is divided by the number of the people in the world. So each person has an allocated amount of emissions, so each country is responsible to stay below the allocated amount of their entire population. Seems fair, right? I thought so. It made perfect sense to me, each person gets an equal share of the pie and no one can complain.

However, some nations don't see it as reasonable as I do, especially the rich countries… namely the US. See, the US views this as an attack. If the world's pollution limits were divvied out evenly they would have to decrease their output significantly. Other countries, mainly those pushing for this, can stand to benefit from this because their people have a ways to go to reach that limit, meaning they would be able to actually increase their CO2 output.

Personally, I think this seems fair. For one, the US and other developed countries have been responsible for a lot of the climate change problem, even if they weren't aware of it. For another, the US doesn't really have a right to tell developing countries that they are not allowed to follow in our footsteps to a better life, that's just rude.



This example shows regionally negotiated rates of C&C

Graph of C&C Strategy

Then I started wondering what the implications of the C&C model would be for me personally. I started wondering exactly what it would mean to live at this threshold of "one metric ton of carbon equivalent per capita" that Roberts and Parks say is necessary. If the average American really dumps nine times as much C02 into the air as the average Chinese & 90 times as much as the average Bangladeshian then how much would we have to decrease our consumption to reach an average level for the entire planet?

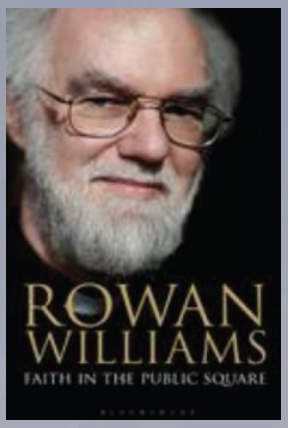
So I checked out the Nature Conservancy CO2 calculator to see if I could calculate a rough estimate of my current share of this "per capita" output. The results I found were very unsettling. (First I did some conversions and found that 1 metric ton is equal to 1.1 US tons, which is the unit the Nature Conservancy used).

My per capita emissions (based on the fact that I have a 5 person family in one normal house) are roughly around 13 US tons which is actually 52% that of the average American, a whopping 27 US tons. The world average? 5.5 tons. So this means that the entire world has to reduce their CO2 output to 1/5 what it currently is, and I have to somehow decrease it to 1/13. Puts things into perspective, right?

So I tried again to see if I could manipulate the calculator to form a situation where I was below 1.1 US tons. I put my 5 person family in a huge apartment with only 3 bedrooms. I heated and cooled and lit my house efficiently wherever possible, used all ENERGY STAR appliances, used no hot water, drove no vehicle, went vegetarian on all organic food, composted everything and recycled everything else. My results? Still 3 US tons! There was no possible way to get the calculator below 1.1 US tons.

This puzzle made the depth of our situation clear to me. This won't be easy. In order to reduce emissions to the stability level that Roberts & Parks want we'd all have to rid ourselves of pretty much every comfort that we take for granted. We need to be prepared to give up a lot, because even improved technology isn't going to be the solution (though it could definitely improve the situation). We need to radically rethink the structure of our societies & what we truly believe is important to us. If the NCC is right, and I can't live under one metric ton of CO2 doing every little thing I can, then Michael Maniates is right, and we need to start thinking big.

"Fueling Injustice: Emissions, Development Paths, & Responsibility." Roberts & Parks, A Climate of Injustice, MIT, Cambridge, MA,



"One of the features of addictive behaviour is, classically, denial; we should perhaps not be surprised to find the divided mind I spoke of a moment a go in so much of our economic forecasting. But we learn to face and overcome denial partly by new relationships or new security about relationships enabling us to confront unwelcome truths without the fear of being destroyed by them.

This is why myths matter, and why multiplying statistics doesn't of itself change things. That the world is the vehicle of 'intimate and dynamic relation' with the active and intelligent source of all life is some sort of spur to face our sins and absurdities in dealing with it. But we need to bear in mind also that we are talking not just about the respectful conservation of an environment for its own sake. Concrete material processes have, so to speak, caught up with the myth, and we should be able to see that offences against our environment are literally not sustainable.

The argument about ecology has advanced from concerns about 'conservation': what we now have to confront is that it is also our own 'conservation', our viability as a species, which is finally at stake. And what is more, in the shorter term, what is at stake is our continuance as a species capable of some vision of universal justice. Not the least horror of our present circumstances is the prospect of a world of spiralling inequality and a culture that has learned again to assume what Christianity has struggled to persuade humanity against since its beginning - that most human beings are essentially dispensable, born to die, in Saul Bellow's harsh phrase. I needn't elaborate on how this makes absolute nonsense of any claim to be committed to a gift-based view of the world and of our individual and social relations. There is in the long run no choice between this spiralling inequality (and the fortress societies it will create) and some realistic step to deal with our addictions.

The Global Commons Institute, based in London, has in recent years been advancing a very sophisticated model for pushing us back towards some serious engagement with this matter of equality, through its proposed programme of ***'Contraction and Convergence'.*** *This seeks to achieve fairly rapid and substantial reductions in greenhouse gas emissions - but to do so in a way that foregrounds questions of equity between rich and poor nations. At the moment, rates of emission are fantastically uneven across the globe. In the first 48 hours of 2004, an average American family would have been responsible for as much in the way of emissions as an average Tanzanian family over the entire year. So what is proposed is that each nation is treated as having the same limited 'entitlement to pollute' - an agreed level of carbon emission, compatible with goals for reducing and stabilizing overall atmospheric pollution.*

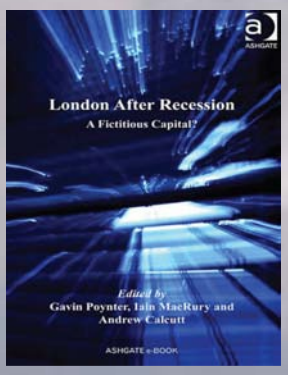
Since, obviously, heavily industrialized, high-consumption nations will habitually be using a great deal more than their entitlement and poorer nations less, there should be a pro rata charge on the higher users. They would, as it were, be purchasing the pollution 'credits' of less prosperous countries. And this charge would be put at the service of sustainable development in poorer nations in accord with the Millennium Development Goals. This would be treated not as an aid issue, but as a matter of trading and entitlement. The hoped-for effect in the medium term would be convergence: that is, a situation in which every citizen of the globe would be steadily approaching the same level of responsibility for environmental pollution. Because such a programme would necessarily challenge over-average users to reduce (otherwise an intolerable tax burden would be imposed), we could look for a reduction in the addictive levels of dependence in wealthier countries and a stimulus to develop renewable energy sources. We should also achieve a dependable source of development income, neither loan nor aid, for the countries suffering most intensely from the existing inequities.

This kind of thinking appears utopian only if we refuse to contemplate the alternatives honestly. Climate change has rightly been described by Sir David King, Chief Scientific Adviser to the Government, as a 'weapon of mass destruction', words echoed by Hans Blix, the former UN weapons inspector. In the current atmosphereof intense anxiety about terrorism, 'rogue states' and long-term political instability, we absolutely cannot afford to neglect what is probably the most deep-rooted source of further and potentially uncontrollable instability in the foreseeable future."

Faith in the Public Square
Rowan Williams
http://www.gci.org.uk/index.html Faith in the Public Square [Can you hear the harmonics? See below].

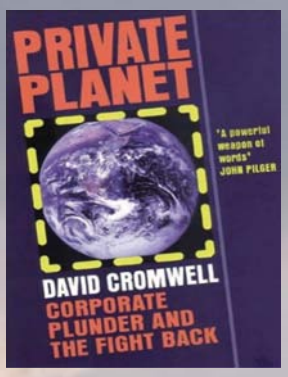
Rowan Williams, the finest theologian in Britain, offers in these essays the most penetrating analysis of the moral, cultural and economic crisis of our times, and of the role of faith in the public arena. It should be read by politicians, economists and artists, and by anyone who cares for the future of our society and planet.

Timothy Radcliffe OP



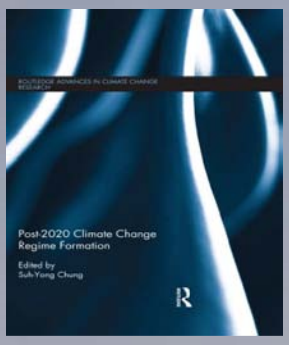
*The system of **'Contraction and Convergence'** [C&C] first envisaged by the Global Commons Institute (GCI: 1990), a London-based enterprise. According to C&C, if emissions are lessened in the largest polluting countries, while emissions allowances are increased for developing countries, this will create equilibrium in global emissions. Meanwhile, in the (then) bear pit of British politics, the convergence between environmental concerns and economic self-interest, was already receiving support from an unlikely source - Prime Minister Margaret Thatcher.*

London After Recession
Pointer McRury Calcutt



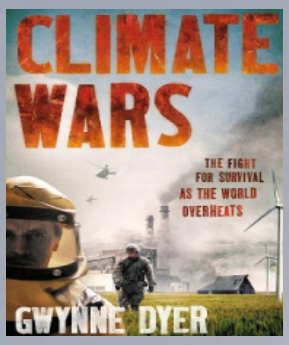
*"We assume that the UK progressively reduces its carbon footprint so that it uses only its fair share of total global carbon emissions under the given, interim target, making sure that other countries, particularly developing countries, have space to develop and make their own transition to a sustainable future. We assume a global 'deal' based on **'Contraction and Convergence'** to limit, reduce and maintain total global emissions within defined limits (the contraction); we also assume that the UK's total share of emissions progressively comes into line with its fair global share (the 'convergence'), with significant transfer payments to developing countries during the process to facilitate their sustainable development. [In 1997] "Robin Cook's initiative, which was jointly agreed with John Prescott's Department of the Environment, represented one possible way to get the developing world and, by implication, the US, on board the climate train. However, it is not the only way or, for that matter, the sustainable way. Environmentalist Aubrey Meyer believes that he has a more comprehensive 'world-saving idea' that could really cut the Gordian knot of international climate negotiations. Under the auspices of the Global Commons Institute, the London-based lobbying group he helped to set up with friends from the Green Party in 1990, Meyer has been promoting a simple and powerful concept which has already had a major impact on senior politicians and negotiators. GCI's eye-catching computer graphics illustrate past emissions and future allocation of emissions by country, achieving per capita equality by 2030, for example. After this date, emissions drop off to reach safe levels by 2100. This so-called 'contraction and convergence' in emissions has gathered the support of a majority of the world's countries, including China and India. It may be the only approach that developing countries are willing to accept."*

Private Planet
David Cromwell
http://www.private-planet.com/



*While several institutions such as the World Resources Institute have attempted to survey & capture the diverse interests and views, there have been limited attempts for a similar review within institutions of the ASEAN member countries. As such there is a lack of discussions on bottom up approaches or alternatives such as the '**Contraction & Convergence'** principle, supposedly to provide a more realistic way forward to improve' the UNFCCC approach.*

Post-2020 Climate Change Regime Formation
Edited by Suh-Yong Chung

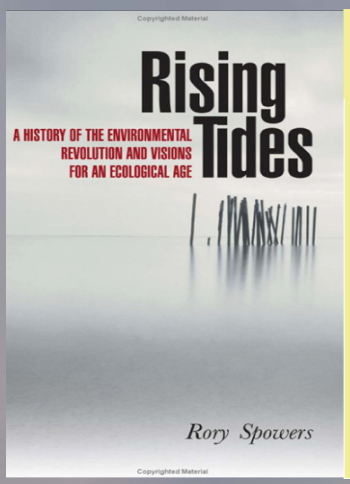


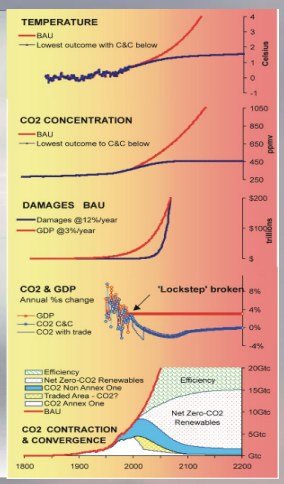
*"The idea behind '**Contraction** [of emissions] **and Convergence** [of rights to emit], is now main-stream. Like all successful ideas, it now has many would-be fathers. But it was Aubrey Meyer and GCI who took it to market and sold it."*

Climate Wars - Gwynne Dyer on C&C
http://www.gci.org.uk/Support/Dyer_.pdf

*The **"Contraction & Convergence"** proposal, developed by Aubrey Meyer, assigns every human being an equal entitlement to GHG emissions. All countries should thus move towards the same per capita emissions. Total emissions should contract over time, and per capita emissions should converge on a single figure. The actual convergence value, the path towards convergence, and the time when it is to be reached would all be negotiable. The proposal allows for the trading of emissions entitlements using mechanisms of the kind permitted under the Kyoto Protocol. At one level, this is compelling. It offers long-term architecture for an international emissions regime, potentially robust across several of the equity dimensions identified in this paper. It would not require developing countries to shift their immediate focus away from their basic needs: their emissions constraints would bite gradually as per capita emissions increased. And by emphasizing entitlements as well as commitments, it could help address the sense of inequity that arises from the unrequited "carbon debt" of past emissions by industrialized countries. Ultimately, almost any conceivable long-term solution to the climate problem will embody, at least in crude form, a high degree of contraction and convergence. Atmospheric concentrations of GHGs cannot stabilize unless total emissions contract; and emissions cannot contract unless per capita emissions converge. The C&C proposal plays an important role in the climate process. It focuses attention on the ethical questions at the heart of the climate problem, which no long-term solution can afford to ignore. If supported by a critical mass of countries, it would become an important force in the negotiation. The ideas behind the proposal will remain relevant to any discussion of climate & equity for as long as the search continues for a global response to climate change.*

Beyond Kyoto PEW Centre
http://stephenschneider.stanford.edu/Publications/PDF_Papers/EquityandClimate.pdf

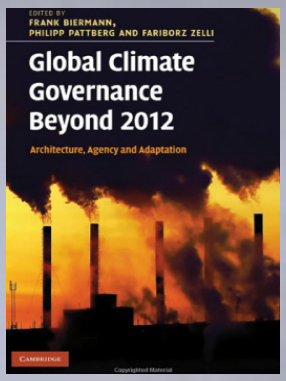




*"Developed by Aubrey Meyer and the Global Commons Institute the **'Contraction and Convergence'** [C&C] is perhaps the most simple yet sophisticated framework which tackles the seemingly impossible task of stabilising the atmospheric concentrations of carbon dioxide and averting the irreversible trends of runaway climate change."*

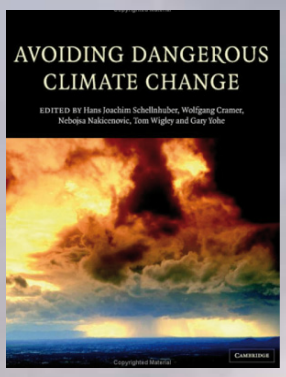
Rising Tides
Rory Spowers

http://www.amazon.co.uk/Rising-Tides-Rory-Spowers/dp/1841954020/ref=sr_1_113?s=books&ie=UTF8&qid=1298896628&sr=1-113#_



*"Of all the regimes, the '**Contraction and Convergence'** regime has been analysed most often. The most crucial reason is its simple formulation - which makes it a good reference for any form of allocation. The first step in the 'contraction and convergence' regime is to establish a long-term global emission profile. Then emission rights are allocated so that the per capita emissions converge from their current values to a global average in a specified target year [Meyer 2000]."*

"Global Climate Governance Beyond 2012" on C&C
Frank Biermann, Philipp Pattberg, Fariborz Zelli
http://www.amazon.com/Global-Climate-Governance-Beyond-2012/dp/0521190118/ref=sr_1_1?s=gateway&ie=UTF8&qid=1285747305&sr=8-1



*"We chose one of the many possible options for the international regime of differentiating future commitments [post 2012]: the **'Contraction and Convergence'** approach**.** It is a widely known and transparent approach that defines emissions allowances on the basis of convergence of per capita emissions allowances [after 2012] of all countries [including the USA] under a contracting global emissions pathway (Meyer 2000)."*

Avoiding Dangerous Climate Change
Schellnhuber, Cramer, Nakicenovic, Wigley, Yohe
http://www.amazon.com/Avoiding-Dangerous-Climate-Joachim-Schellnhuber/dp/0521864712/ref=sr_1_1?s=gateway&ie=UTF8&qid=1285740598&sr=8-1#_

Key Recommendations - *In light of the growing human impact of climate change and the pressures of this crisis for humanitarian and development work, the following is a list of key recommendations made by the different discussion groups at the 2009 Forum.*

Climate vulnerable coalition - Those nations most vulnerable to the impacts of climate change should form a common front in order to increase awareness on the impact and risks of climate change, share expertise relating to climate change policy, & influence the development of safe & equitable international climate change policy, with the strongest possible impact on the 2009 UN Climate Conference at Copenhagen COP-15.

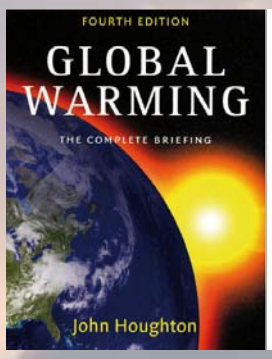
Future international climate change agreement

*1. The principle of **'Contraction and Convergence'** with a population base year should provide the basis framework for global greenhouse gas emission reductions*

2. "No deal is better than a bad deal": it would be more constructive to avoid conclusion at the 2009 UN Climate Conference at Copenhagen of any climate change agreement that would not provide for basic levels of safety, equity and predictability

3. All parts of civil society should make a concerted attempt to create wide multi-stakeholder partnerships for concentrating pressure for a successful conclusion to the Bali Road Map & COP-15."

2009 Global Humanitarian Forum
Human Impact of Climate Change
http://www.gci.org.uk/Documents/GHF_2009_.pdf



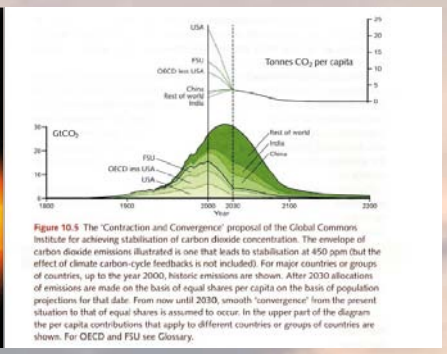
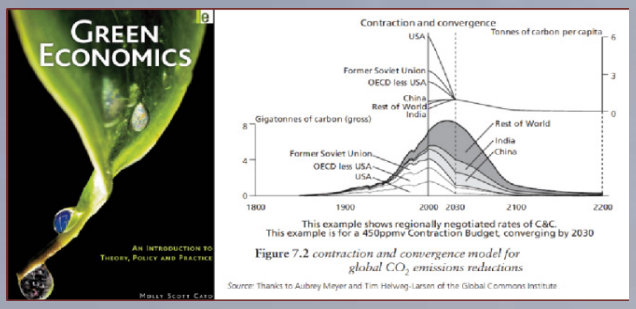


Figure 10.5 The 'Contraction and Convergence' proposal of the Global Commons Institute for achieving stabilisation of carbon dioxide concentration. The envelope of carbon dioxide emissions illustrated is one that leads to stabilisation at 450 ppm (but the effect of climate carbon-cycle feedbacks is not included). For major countries or groups of countries, up to the year 2000, historic emissions are shown. After 2030 allocations of emissions are made on the basis of equal shares per capita on the basis of population projections for that date. From now until 2030, smooth 'convergence' from the present situation to that of equal shares is assumed to occur. In the upper part of the diagram the per capita contributions that apply to different countries or groups of countries are shown. For OECD and FSU see Glossary.

*"An example of how the approach to stabilisation for carbon dioxide might be achieved is a proposal called **'Contraction & Convergence'** originating with GCI, a non-governmental organisation based in the UK."*

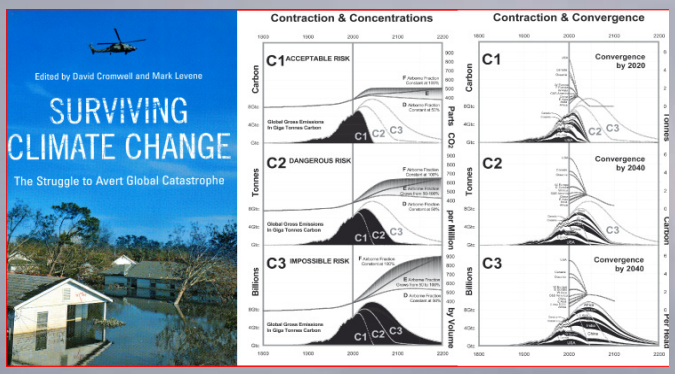
Global Warming; Complete Guide J Houghton on C&C
http://www.gci.org.uk/Support/Hougton.pdf



"Since enforcing a carbon cap via tradeable permits effectively creates a huge economic value, it should belong to all citizens rather than a small minority. Such a commitment to equity leads to a plan for the sharing of the global commons, such as the Global Commons Institute's ***Contraction and Convergence*** *– the first approach to tackling climate change that began from the simple notion that each person on the planet had an equal right to produce CO2. The 'convergence' was the name given to the commitment to share these emissions fairly within a meaningful cap on total output of CO2. Overproducing countries would then be required to compensate under-producing countries. The 'contraction' is the process of all countries, in step, reducing-their emissions gradually over the next 50 years. The scheme is illustrated in Figure 7.2. The rising curve is the historical increase in CO2 emissions; these are portrayed following a sharp descent over the next century (the contraction) during which time countries also converge towards a share of the global total that represents the size of their population."*

Green Economics - Molly Scott Cato

http://www.amazon.com/Green-Economics-Introduction-Theory-Practice/dp/1844075710/ref=sr_1_1?ie=UTF8&s=books&qid=1299088096&sr=8-1#_

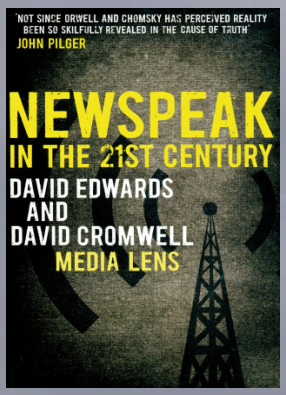


"Climate change is a pressing reality. From hurricane Katrina to melting polar ice, and from mass extinctions to increased threats to food and water security, the link between corporate globalization and planetary blowback is becoming all too evident. Governments and business keep reassuring the public they are going to fix the problem. An epochal change is called for in the way we all engage with the climate crisis.

Key to that change is Aubrey Meyer's proposed ***'Contraction and Convergence'*** *framework for limiting global carbon emissions, which he outlines in this book."*

"Surviving Climate Change" - Editors Levene & Cromwell

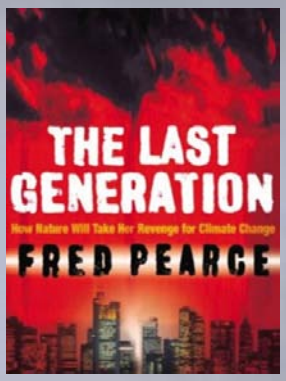
http://www.gci.org.uk/Documents/C&C_Chapter_Levene_Book_.pdf



"Challen presented the alternative policy; namely, ***'Contraction and Convergence',*** *devised by the London-based Global Commons Institute led by Aubrey Meyer: We know that we need to reduce our carbon emissions so that we arrive at a safe concentration in the atmosphere - perhaps 450 parts per million. We also know that without developing countries being part of a global agreement, it won't work. The answer is convergence - we should aim to contract our emissions while converging to a per-capita basis of shared emissions rights. Challen's warning of the consequences, should contraction and convergence fail to be adopted worldwide as a post-Kyoto climate policy, was expressed in extremely stark terms: 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. This was a crucial and hard-hitting message. So how did the mainstream media respond to the parliamentary climate change group's challenge? The environment editors and commentators at the Daily Telegraph, Financial Times, the Guardian and The Times had nothing at all to say. Only the Times published a commentary. This was penned by its anti-green columnist, Mike Hume, rubbishing the parliamentary group as a 'cream-puff army' peddling 'irrational' drivel."*

NEWSPEAK in the 21st Century; David Edwards David Cromwell

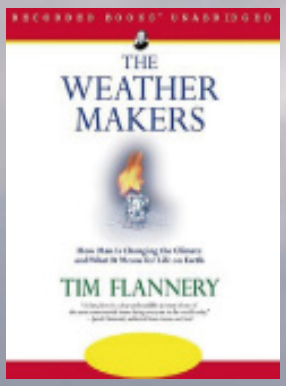
http://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Daps&field-keywords=Newspeak+in+the+21st+Century



*"The only solution is a ration system with pollution rights that everyone is seeing as fair. Perhaps the simplest plan for a ration system is known by the term **'Contraction and Convergence'**. The model was developed by a small British group, the Global Commons Institute, and finds support around the world. The contraction half includes a consecutive series of annual targets for global emissions. These objectives begin about where we are now and decrease in the coming decades. They are rated so that the atmosphere never passes the limit of carbon dioxide concentrations that the world has set for itself. The convergence half of the formula implies that the annual allowable global emissions are spread over the countries in proportion to their population. So national targets could start by about 1 ton of carbon per capita and then drop to, say half a ton in 2050 and much less in 2100, according to the agreed global goal. Naturally, the rich countries would in the beginning have not enough rights and poor countries have more rights than they need. So they trade these rights. The demand and supply of pollution rights would provide a significant boost to the global cleaning. Political fantasy? Maybe. But we will need something of that order if we want to avoid climate disasters."*

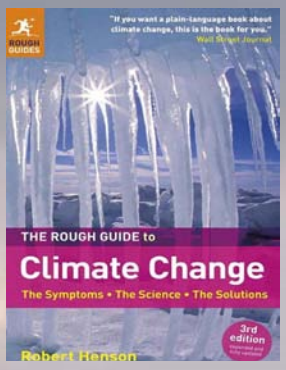
The Last Generation - Fred Pearce on C&C

http://www.amazon.com/Last-Generation-Nature-Revenge-Climate/dp/1903919878/ref=sr_1_2?s=gateway&ie=UTF8&qid=1285740938&sr=8-2

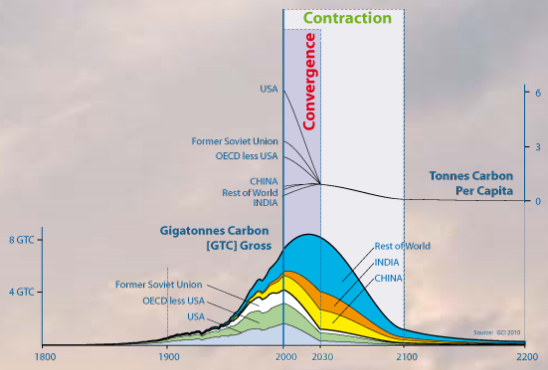


*"Looking further ahead, there is a democratic, transparent, and simple form of international agreement that might one day replace Kyoto. Known as **'Contraction and Convergence'** (C&C) it has been championed by UK politician Aubrey Meyer for over a decade. In some ways C&C is an ultra-democratic variant of the Kyoto Protocol, for at its heart is the simple idea that the only equitable way to reduce emissions is to grant every human being an equal "right to pollute" with greenhouse gases . As with Kyoto, this right could be traded, though under C&C the volume of trade is likely to be far larger than under Kyoto. When facing a grave emergency, it's best to be single-minded."*

The Weather Makers -
Tim Flannery on C&C



*"Among the most intriguing plans offered to date is the **'Contraction and Convergence'** (C&C) model developed by the Global Commons Institute, a British group headed by Aubrey Meyer. It was introduced by the Indian government in 1995 and adopted by the Africa Group of Nations in 1997 during the run-up to Kyoto. The plan has also received votes of support from the European Parliament and several UK and German advisory groups."*



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

In the words of the C&C position statement — as true now as when C&C was first proposed in the 1995 — "The global community continues to generate dangerous climate change faster than it organizes to avoid it. The international diplomatic challenge is to reverse this."

Rough Guide to Climate Change - Third Edition
Robert Henson on C&C

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

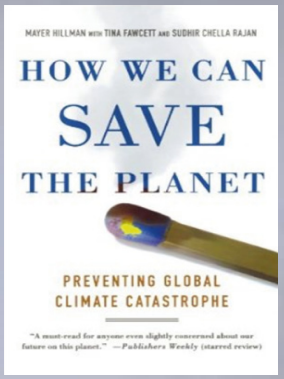
One principle that tries to balance the dilemma is Contraction and Convergence (C&C).

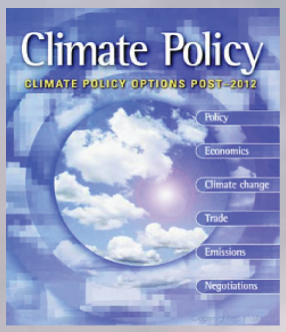
Although the implementation rate was a stumbling block at Copenhagen and Durban (Meyer and O'Connell 2010), ***'Contraction and Convergence' [****C&C] begins to provide a fair platform for multilateral negotiations. This principle (see Global Commons Institute (GCI) 1996) first assumes that global CE will negatively impact human and planetary health in the longer term and so must be 'contracted' if we care about the likely impact on younger generations (e.g. Sherwood and Huber 2010). If it were not a normal public good, this would not present a problem, but because CE is tied to economic development (York et al. 2003; Rosa et al. 2004), it means any pursuit of global contraction could result in recession or depression amongst advanced economies. This was suggested when the global financial crisis (GFC) reduced world emissions (see Jotzo et al. 2012). Although there is resistance to the idea of contraction, whether by a Pigovian tax or a trading scheme (Garnaut 2011), climate science suggests we have no choice. The alternative could be resource and energy wars and further destruction of ecologies subserving human survival (e.g. Parry et al. 2004; Thomas et al. 2004; Malcolm et al. 2006). The second element of C&C is 'convergence', where every nation must be granted an equal portion of emissions per capita under a constrained global budget (Global Commons Institute (GCI) 1996). This applies the same ethical principle of unity across nations as contraction applies across generations (see Stern 2006; Nordhaus 2007). Together, the two principles of C&C try to balance the carbon budget across every living person, both now and in the future.*

Having defined C&C, we can now look at the implications of the climate science. Hansen's conservative budget of 750 Gt would mean around 450 Gt will be subtracted from the cumulative budget by mid-next year, leaving 300 Gt remaining. Given a global population of 6.8 billion in 2011 that leaves a C&C target of only about 1.3 tonnes per capita for every year leading up to 2050. The more optimistic Meinshausen budget allows 1.8 tonnes for a population heading towards 9.2 billion by 2050 (United Nations Population Division 2011), roughly matching Stern's original suggestion of 2 tonnes per capita in 2008 (Stern 2008). The problem is that both are a much greater challenge to advanced economies than the global average of 6 tonnes per capita. They also suggest the current rate of technological development aimed at decoupling growth from CE (see Steinberger et al. 2012) will not avoid the 2 C limit. It appears that widespread and dramatic mitigation and adaptation is inevitable, advanced economies must contract their emissions and developing countries should not pursue parity at the upper levels.

The current paper explores what these C&C targets might mean for human LE, hoping there might be a more optimistic outcome. Before describing the methods, we outline evidence suggesting economic growth might not offer positive, monotonic and linear returns on human welfare in the first place. In fact, there may be reasons why developing nations should not expect linear gains in human welfare from carbonised growth beyond a certain limit. If stable, this limit might offer a more optimistic C&C target up to 2050.

Towards a Contraction and Convergence target based on population life expectancies since 1960





Paul Read Janet Stanley Dianne Vella_Brodrick, Dave J Griggs
http://link.springer.com/article/10.1007%2Fs10668-012-9432-y

*"A brilliant, imaginative and simple means of reaching such an agreement on emission reductions has been put forward. Known as **'Contraction and Convergence'** (C&C), it was first proposed by the Global Commons Institute (GCI) in the early 1990s. Recognition of its unique qualities as a framework for combating climate change has grown at an astonishing rate since that date. It is thought by an increasingly influential number of national and international institutions to be the most promising basis for global negotiations."*

How We Can Save the Planet - Mayer Hillman on C&C
http://www.amazon.com/How-Can-Save-Planet-Catastrophe/dp/0312352069/ref=sr_1_1?s=gateway&ie=UTF8&qid=1285741393&sr=8-1

*Breaking down global emission pathways into reduction targets for individual countries or regions is probably one of the more contentious challenges for climatic negotiators. It should be clear that there is no single correct answer to the question of how much the EU needs to reduce the emissions in order to meet a, say, 450 ppm concentration target. The reason for that is not only that there is some degree of freedom as to when the reductions should take place, as discussed above, but also – and perhaps more importantly - that there are several different methods that can be used to share the burden of emission reductions between countries and regions; e.g. equal per capita, **'Contraction and Convergence'** (Meyer, 2000), multistage, intensity targets, global triptych and multi-sector convergence (sec, e.g., den Elzen, 2002; Grassl et aI., 2003; Hohne, 2005).*

Due to space limitations, it is not possible to review these results in detail. Instead, I will offer an illustration of the implications of one approach - contraction and convergence by the year 2050 with a focus on CO2 for three different concentration targets (350, 450 and 550 ppm). Results where other approaches are taken and when all the Kyoto gases are considered arc discussed later.

In Figure 3, per-capita emissions in the European Union and China over the next 50 years that would be compatible with a global effort to meet these three targets are shown. The emission pathways are developed in the following way. It is assumed that all countries receive emissions allowances for the year 2000 that represent their current emissions.

For the year 2050, allowances are allocated on a per-capita basis globally. For the years in between, a linear weighting scheme is assumed. In addition, I have assumed that the contributions from deforestation and land-use changes drop linearly from 1.5 GtC/year at present to zero by the year 2050. The global population reaches 9.1 billion by the year 2050 (UN, 2004).

For the year 2050, the required reduction in EU lies in the range 50% (for a 550 ppm target) to 90% (350 ppm). It is worthwhile to note that there is such a sharp reduction requirement for the 550 ppm target despite the fact that the global carbon emission trajectory leading to 550 ppm actually increases by 20% (see Figure 2). The reason for this is that the contraction and convergence approach requires that emission allowances should be allocated on a per-capita basis.

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For the year 2020, the per-capita reduction targets for the EU, should be in the range minus 20-40% compared to the year 2000 for the 350 and 450 ppm targets, respectively.

I am deliberately rounding numbers in order to avoid creating the impression that one can be very precise in establishing what needs to be done in one region in the near term in order to meet a global long-run target.

It is interesting to compare these targets with those proposed by the Council of the European Union (on 10 March 2005). The EU proposed that the developed countries adopt reduction targets (for all Kyoto greenhouse gases) in the order of 15- 30% below 1990 by 2020.

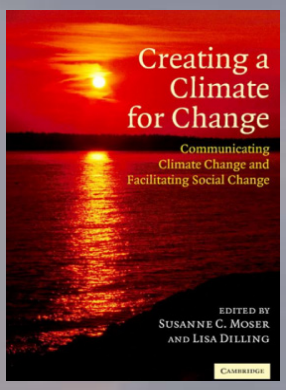
Other, more detailed assessments of the reduction requirements generally fall in this range, not only for the ***'Contraction and Convergence'*** *but also for other allocation methods; e.g. the Triptych regime and various forms of multistage models (see den Elzen, 2002; Nakicenovic and Riahi, 2003; den Elzen et aI., 2005; Hahne, 2005; Persson et aI., 2005). den Elzen and Berk (2004), for instance, find that a reduction of all Kyoto greenhouse gases by approximately 30% is required over the years 1990-2025 in an 'enlarged EU' in order to meet a 550 ppm CO2 equivalent target for not only contraction and convergence by 2050 but also for Triptych and for a multistage approach. The reason why their number is lower than the upper range in our estimate is that our higher value reflects a more ambitious reduction target (compatible with 350 ppm CO2).*

Cases where the allocation approach does have a significant impact on the near-term reduction requirements include (rather obviously) equal per-capita now, ***'Contraction and Convergence'*** *by the year 2100, which gives less stringent reductions in the North (and correspondingly more stringent targets in the South), and the Brazilian proposal, which requires somewhat steeper reductions in the Annex-I countries because of its focus on historical responsibility.*

For China the large difference in the 350 and 550 ppm global emission trajectory (Figure 3) translates into either a possibility to increase its per-capita emissions by 80% (in the 550 ppm case) or decrease them by 70% in the 350 ppm case.

I chose to include only the EU and China in the graph in order not to complicate the picture with too many regions, but it is worthwhile to note that the results for the EU also hold (in broad terms) for Japan, the Former Soviet Union FSU) and South Africa. The USA, Canada, Saudi Arabia and Australia have substantially higher per-capita emissions, so the reduction requirements are sharper. The results for China hold roughly also for fossil-fuel-related emissions from Latin America. India, Africa and Indonesia emit roughly half as much per capita as China and Latin America and may thus be allowed to increase their emissions of CO2 On the other hand methane and N2O emissions in India, Indonesia and southern Africa are larger than the emissions of fossil carbon, so taking these gases into account implies more stringent emission targets for these countries.

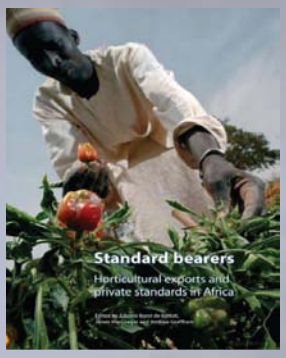
Climate Policy Options beyond 2012
Bert Metz, the Netherlands, Mike Hulme, Tyndall Centre
http://books.google.co.uk/books?id=49ffneqJmcoC&pg=PA314&dq=%22Contraction+and+Convergence%22+UNDP&hl=en&sa=X&ei=lD3iUYfTOKuY0AWqzYGgBg&ved=0CDIQ6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22%20UNDP&f=false



It is imperative that any climate mitigation regime take into consideration issues of ethics human right and justice. EcoEquity and the Centre for Science and the Envrionment lay out a vision for fairness that in their words is equal per capita rights to the atmosphere.

Internationally this vision is captured in the proposed ***'Contraction and Convergence'*** *approach which reduces emissions from developed high emissions countries and over time comes to a worldwide equal but much reduced per capita standard [Global Commons Institute]*

Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change Susanne C. Moser, Lisa Dilling
http://www.amazon.com/Creating-Climate-Change-Communicating-Facilitating/dp/0521869234/ref=reader_auth_dp#reader_0521869234



Opportunities for utilising ecological space

Because of its past and present greenhouse gas emissions, the industrialised world is the prime driver of climate change. Poor countries, meanwhile, pollute the least and suffer the most from the impacts of climate change. These disparities in emissions also mean that most developing countries, particularly in Africa, have high levels of carbon credit. To redress the balance, developing countries can use or sell some of their excess ecological space to reduce poverty and boost low-carbon economic growth and development. If the balance is achieved at a globally low level of emissions, it would be in line with the theory of ***'Contraction and Convergence'*** *proposed in the 1990s by the Global Commons Institute and accepted as a policy target by the Africa Group, among others.*

While a significant share of the emissions from industrialised countries can be attributed to sources such as 'luxury' consumption and leisure, African countries emit mostly 'productive' carbon, generated to meet basic needs. This difference could be realised in trade-driven activities that benefit developing countries – for example, the export of flowers or green beans from several African countries, including Kenya, to developed countries like the UK (see 'Fresh thinking', below). While this may generate additional emissions in developing countries through the production and freighting of these goods, it also enables them to develop their economies and boost the livelihoods of many people.

Standard Bearers Ed A Borot de Battisti, J MacGregor
http://www.gci.org.uk/Documents/16021IIED.pdf

Science for Environment Policy
DG Environment News Alert Service
SPECIAL ISSUE
EUROPEAN COMMISSION

The study constructed three scenarios of resource extraction for the year 2050. In the business-as-usual scenario, industrial countries maintain the same rate of resource use per capita whilst developing countries catch up. Under this scenario, annual global resource extraction could triple, as would average per capita emissions to 3.2 tons CO2 per capita, compared to the year 2000.

Under a moderate ***'Contraction and Convergence'*** *scenario, industrial countries reduce their rate of resource use by a factor of two, while developing countries catch up to these reduced rates. Compared to 2000, this could produce an increase in annual resource extraction of 40 per cent and an increase in average per capita emissions of nearly 50 per cent (1.6. tons CO2 per capita).*

Under a tough ***'Contraction and Convergence'*** *scenario, the consumption levels of resources in 2050 are the same as levels in 2000. It requires industrial countries to reduce their rate of resource use by a factor of 3 to 5 and developing countries by 10-20 per cent. This could decrease per capita emissions of CO2 by 40 per cent.*

These results suggest a need for policy intervention.

The three scenarios for the year 2050 have been constructed and may be compared to the baseline of the year 20006.

The first represents one vision of "business as usual".

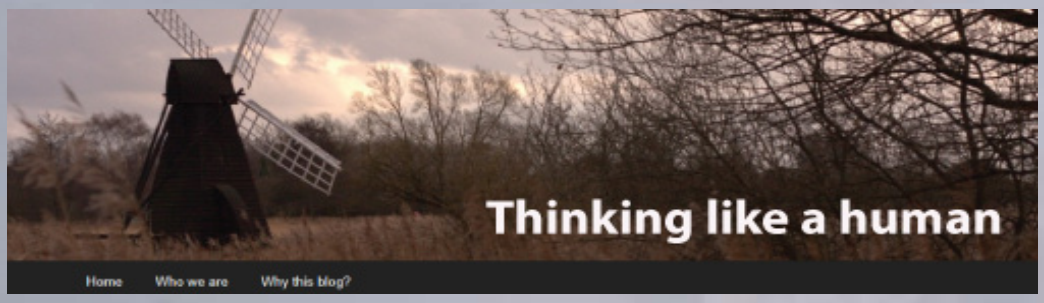
The two others are increasingly stringent versions of the ***'Contraction and Convergence'*** *ideas put forward in the climate debate (GCI 2003).*

http://ec.europa.eu/environment/integration/research/newsalert/pdf/26si3.pdf

*Another proposal is **'Contraction and Convergence'**. This proposal establishes a global trajectory towards a specific concentration level of carbon dioxide. Under this proposal, all countries agree an annually reviewable target and then work out the rate at which emissions must contract in order to reach it . Allocations of carbon dioxide converge by a specific date from current emissions to allowances that are proportional to national populations (equal per capita emissions). The proposal is based on the principle of equal per capita emissions and is simple but does not specifically take national circumstances into account.*

Verifying Treaty Compliance
Rudolf Avenhaus, Nicholas Kyriakopoulos, Michel Richard

http://books.google.co.uk/books?id=Sye4qSmw0hUC&pg=PA204&dq=%22Contraction+and+Convergence%22+UNFCCC-compliance&hl=en&sa=X&ei=ToTbUd_aMo7u0gXIq4HwCw&ved=0CF8Q6AEwCA#v=onepage&q=%22Contraction%20and%20Convergence%22%20UNFCCC-compliance&f=false



*Environmentalism's challenge to the current version of sustainability is to seek, in Tim Jackson's words, prosperity without growth, to develop strategies for degrowth. This will involve some kind of transition out of the current endless pursuit of increased production and consumption. This requires political, economic and cultural strategies for **'Contraction & Convergence'**, and a new regime of social control on capital.*

Production needs to be transformed, de-carbonizing energy generation, de-linking energy consumption from economic growth, dematerializing production (radically reducing material throughput of raw materials and the production of waste). And there must be a parallel transformation of consumption, reducing human demands on the biosphere to levels that can be sustained, redirecting consumption to less destructive forms. And while we are at it, we need to redistribute consumption to the less well off: otherwise environmentalism becomes just the defence of the lifestyles of the rich. To contradict George H.W. Bush, missing the spirit of Rio in 1992, the American way of life must be negotiable (as that of the UK and every other wealthy, gas-guzzling industrialised country).

This is an unnerving agenda, indeed it is not really an agenda at all, but a manifesto, a statement of possibilities. There is no road map for transition, just theories and local experiments, mere straws in the wind. But the need for transition is deadly serious. Nothing else offers a way forwards for humanity that addresses our demands on the biosphere. Nothing else offers the basis of a true strategy for conservation.

And here's the rub: the challenge of developing a transition from the twentieth century growth model is not consistently part of the conservation agenda. Conservation plays on a much smaller stage, mopping nature's wounds not addressing the cause of injury. Biodiversity conservation and environmentalism have different agendas, and there is a widening gulf between them: between conservation with its increasingly sophisticated protection of species and spaces, and environmentalism with its demand for radical change to production and consumption.

Who we are
Chris Sandbrook *is lecturer in Conservation Leadership at UNEP-World Conservation Monitoring Centre, and an affiliated lecturer in the Department of Geography at the University of Cambridge.*

He helps to run the MPhil in Conservation Leadership, an 11 month masters degree that seeks to deliver a world-class and interdisciplinary education in conservation leadership. He was trained as a biologist, but has a PhD in Anthropology, on gorilla tourism in Uganda.

Bill Adams *is Moran Professor of Conservation and Development in the Department of Geography in the University of Cambridge, where he has taught for more years than he cares to remember. His first degree is in geography, and during his PhD he moved from being a sort-of ecologist to being almost a social scientist. He works on the evolution of ideas in conservation and sustainable development, and what happens when they are applied. He teaches on the Geography undergraduate programme, and the MPhils in Conservation Leadership and Environment, Society and Development.*

Thinking Like a Human
Chris Sandbrook and Bill Adams
http://thinkinglikeahuman.wordpress.com/2013/07/08/tigers-or-transition/

Developing countries generally advocate a budget allocation of emission proportional to the population. Industrialized countries, who fear an excessive burden prefer a distribution that takes into account historical levels of emissions (Grandfathering).

The quantitative targets of the Kyoto Protocol and are formulated in relation to 1990. A compromise between the population criterion and the criterion of previous levels of emissions would require all countries whose per capita emission levels are very different, converge to a common level.

*GCI has developed a proposal entitled **'Contraction & Convergence'**. It was very well received in the international negotiations and had a strong impact on climate policy Britain.*

A target of reducing global emissions of greenhouse gases by 90 percent until 2080 & convergence of per capita emissions by 2050, the common level would fall to 0.6 tonnes CO2 eq. Developing countries have for a few more years the right to increase their emissions per capita while industrialized countries should immediately reduce theirs.

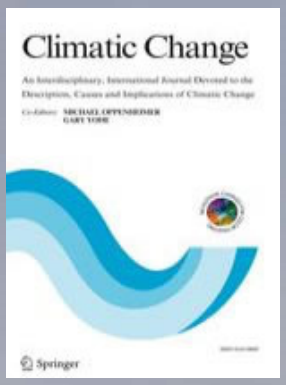
For Switzerland, spend 6.7 tonnes CO2-eq in 2009 to 0.6 tonnes CO2-eq by 2050, a reduction of 0.15 tonnes CO2-eq per year. Given the likely population growth, this means a reduction in emissions of greenhouse gas emissions by 20 percent by 2020 at repor 1990 and 90 percent by 2050.

Objectifs climatiques et réduction des émissions
OcCC Organe consultatif sur les changements climatiques
Beratendes Organ für Fragen der Klimaänderung
Une analyse et vision pour la politique climatique de la Suisse
http://www.gci.org.uk/Documents/Objectifs_climatiques_OcCC.pdf

Besonders die USA wollten, wie schon weiter oben erwahnt, die Entwicklungslander wahrend der Verhandlungen immer wieder zu messbaren Reduktionen verpflichten. Diese jedoch argumentierten, dass das Problem hauptsachlich von den Industrielandern verursacht wurde und diese deshalb auch fur eine Losung verantwortlich sind. Der Gerechtigkeitsaspekt spielt bei der Vereinbarung fur Reduktionen also eine zentrale Rolle.

*Das Konzept **'Contraction and Convergence'** schlagt dazu beispielsweise einen Prozess vor, in dem in einem ersten Schritt die Emissionen, insbesondere der Industrielander, reduziert und den anderen Landern angenahert werden (Contraction). Ab einem bestimmten Punkt in der Zukunft soll dann die Treibhausgas kapazitat der Atmosphare zu gleichen Teilen (Pro-Kopf-Verteilung) auf die Weltbevolkerung verteilt werden (Convergence).*

Der CO2-Emissionshandel: Bedeutung für die Gesamtwirtschaft und für einzelne unternehmen Karl Freudenthaler
http://books.google.co.uk/books?id=U0oSiZu3_iIC&pg=PA28&dq=%22Contraction+and+Convergence%22+OECD&hl=en&sa=X&ei=NjvYUbLhCOSa0QWSgoHgCw&ved=0CFEQ6AEwBTge#v=onepage&q=%22Contraction%20and%20Convergence%22%20OECD&f=false



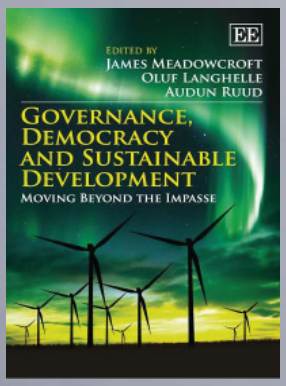
The regional distribution of mitigation costs will be discussed in the next section in combination with the cost implication of delayed mitigation. With a global 25 climate agreement the regional (but not the global) costs of mitigation measures critically depend on the burden sharing principle which determines the allocation of emission rights across regions.

*For the remainder of this paper, we presume the **'Contraction and Convergence'** scheme (Meyer, 2004), which envisages a smooth transition of emission shares from status quo to equal per capita emissions in 2050, is adopted. This allocation scheme combines elements of grandfathering – allocation based on historic emissions – and equal per capita emissions and can be considered a compromise between a pure egalitarian regime and a grandfathering approach.*

Time to act now? Assessing the costs of delaying climate measures and benefits of early action

Michael Jakob*1, Gunnar Luderer*, Jan Steckel*, Massimo 5 Tavoni+, and Stephanie Monjon #*: Potsdam Institute for Climate Impact Research, Potsdam, Germany : Euro-Mediterranean Centre for Climate Change, Venice, Italy #: Centre International de Recherche sur l'Environment et le Dévelopment, Paris, France

http://www.pik-potsdam.de/members/jakob/publications/jakob-et-al-recipe-delayed-action.pdf

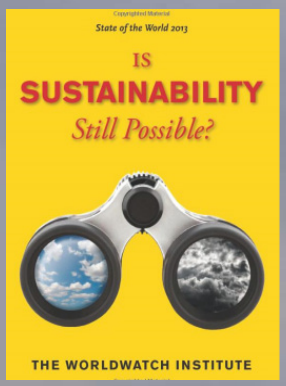


*'Think globally, act locally' has long been a slogan for the environmental movement [and] environmental space, for instance, is explicitly based on a notion of global justice. Thus, the national action prescribed is anchored in a distinct perception of global justice - that of equal emission rights on a per capita basis, often dubbed **'Contraction and Convergence'.***

This is based on historic and current emissions among the world's countries where Norway emits about 10 tonnes GHGs per capita, where the average is less than 4 tonnes, and where the sustainable level is less than 2 tonnes! For Norway, this would imply a 70- 80 per cent reduction to reach an equal per capita share by 2050 within a 450 ppm scenario. The point here is that the National Action discourse has a stronger global core based on the equity dimensions of sustainable development which are necessary to reconcile intra- and inter-generational justice.

Governance,Democracy and Sustainable Development
Meadowcroft Langhelle Ruud

http://books.google.co.uk/books?id=i5h2OY6gC6sC&pg=PA193&dq=%22Contraction+and+Convergence%22+Climate+Act&hl=en&sa=X&ei=kd_XUYusHIa20QXR-YDACA&ved=0CDwQ6AEwAjgU#v=onepage&q=%22Contraction%20and%20Convergence%22%20Climate%20Act&f=false



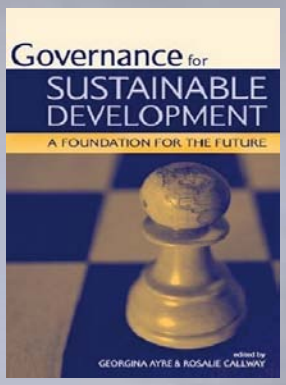
What Lies Ahead

Despite the pressing need for cultural transformation, prospects for real progress toward socially just ecological sustainability are not encouraging. Global society remains committed to the progress myth and to unconstrained economic growth. Indeed, the international community views sheer material growth rather than income redistribution as the only feasible solution to chronic poverty.

*Such an approach might follow a strategy of **'Contraction and Convergence'** during which industrial countries reduced their energy and material throughput to allow room for developing countries to grow.*

The State of the World 2013
WORLDWATCH INSTITUTE

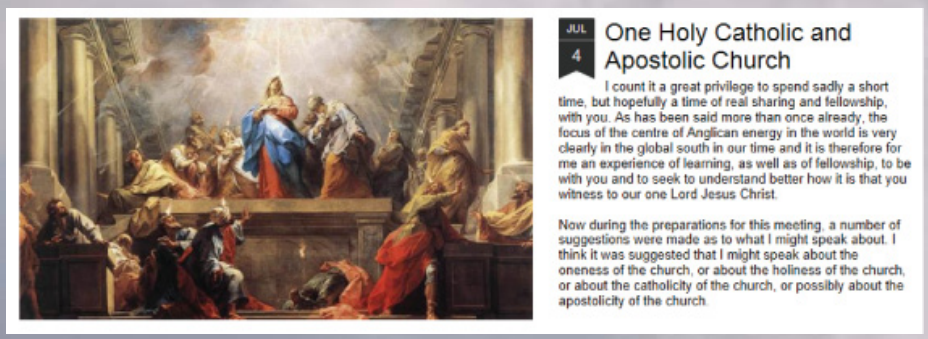
http://www.amazon.com/State-World-2013-Sustainability-Possible/dp/161091449X/ref=sr_1_1?ie=UTF8&qid=1373100804&sr=8-1&keywords=State+of+the+World+2013%3A#reader_161091449X



C&C and the US

*Interestingly, **'Contraction and Convergence'** (C&C) would fit with the stated position of the otherwise recalcitrant US. In his statements on climate change, President Bush set out specific criteria for what sort of treaty the US would be willing to sign up to. These indude a truly global deal with emission targets (or from another perspective entitlements) for developing countries and the need for a science-based approach. C&C,wlth its global participation design and formal greenhouse gas concentration target is exactly such an approach. C&C is also fully consistent with the famous 1997 Byrd Hagel US Senate resolution that stipulated that the US would not sign up to any treaty that did not include developing countries. This has enormous and from a development perspective, very positive consequences since it can liberate resources to finance development. However, as action to combat global warming is delayed, emissions grow and populations rise, and the sustainable size of a carbon cake slice will get smaller and smaller. In other words, the sooner we act the better.*

Governance for Sustainable Development
Georgina Ayre, Rosalie Callway
http://books.google.co.uk/books?id=ihOI9D6qRRoC&q=%22Contraction+and+Convergence%22&redir_esc=y#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false



JUL 4

One Holy Catholic and Apostolic Church

I count it a great privilege to spend sadly a short time, but hopefully a time of real sharing and fellowship, with you. As has been said more than once already, the focus of the centre of Anglican energy in the world is very clearly in the global south in our time and it is therefore for me an experience of learning, as well as of fellowship, to be with you and to seek to understand better how it is that you witness to our one Lord Jesus Christ.

Now during the preparations for this meeting, a number of suggestions were made as to what I might speak about. I think it was suggested that I might speak about the oneness of the church, or about the holiness of the church, or about the catholicity of the church, or possibly about the apostolicity of the church.

*And so, to return to our earlier analogy, international systems of various sorts can properly address those conditions that affect all states; they can seek for covenants of restraint over arms sales and pollutant emissions, even unregulated capital flow. The concept of a form of taxation recognising the transnational costs of some practices – the 'Tobin tax', the **'Contraction and Convergence'** proposals on pollution – is one that reappears more and more frequently in current discussion; and it is important to give a rationale for this independent of any fantasies of universal sovereign jurisdiction, a world superstate. What I have been suggesting is that the pluralist critique of certain ideas of national sovereignty offers a way forward in helping us see lawful authority as, at every level, what secures the bare conditions of any social good.*

Law, Power and Peace: Christian Perspectives on Sovereignty
http://anglicanpilgrim.blogspot.co.uk/2013/07/law-power-and-peace-christian.html

*In the early 1990s, the Global Commons Institute proposed a climate change mitigation strategy known as **'Contraction and Convergence'** whereby each country brings its per capita greenhouse gas emissions to a level that is equal for all countries.*

A similar approach to working towards the equitable and sustainable sharing of the planet's natural resources is a central tenet of the climate justice movement.

This requires that the rich world greatly reduces its disproportionate demand for resources to improve the lives of the 1 billion (and rising) who are severely malnourished, the more than 3 billion who subsist on under 2 US Dollars a day, and the 80% of humanity who earn less than the purchasing power equivalent of 10 US Dollars a day.

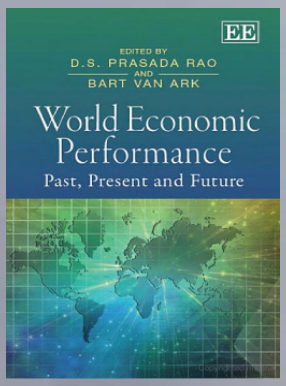
Understanding Sustainability Jon Barrett
http://www.gci.org.uk/Documents/Jon_Barrett.pdf

Share
The World's Resources
sustainable economics
to end global poverty

How to Share The World's Resources : A Proposal

It stands to reason that if resources are managed in the interest of all nations it could be possible to harmonise the world's hugely unequal consumption patterns, even though achieving such a balance is obviously a tremendous challenge in a world driven by consumerism. The basic premise of this adjustment would obviously necessitate the world's over-consuming countries to significantly reduce their resource use, while less developed countries increase theirs until a convergence in global per capita consumption is eventually reached. This broad concept of ***'Contraction and Convergence'*** *is already widely discussed in relation to tackling climate change, as originally proposed by Aubrey Meyer of the Global Commons Institute. This is part of a transcript of a presentation given at the School of Economic Science's annual colloquium by STWR's Rajesh Makwana and Adam Parsons. The conference took place in London, UK, on Sunday 23rd June 2013 under the theme 'One World, One Wealth', with a range of speakers that considered possibilities for a fairer means of distributing the fruits of production for the benefit of all.*

25th June 2013 - Published by Share The World's Resources
http://www.stwr.org/economic-sharing-alternatives/one-world-one-wealth.html



Eventual agreement must be sought somewhere between the 'established levels' and the 'equal per capita ' bases for initial allocations. I have supported suggestions for building an international regime around the idea of ***'Contraction and Convergence'*** *, with rights allocated on the basis of established emissions, with some additional restriction on developed countries and headroom for developing countries. Over a long transition period, there would be a shift towards equal per capita allocations. Such a system would involve large transfers of income to countries whose per capita incomes and emissions remained well below global average levels. It would be important for continued international support for the system that these transfers be embedded into a framework of international cooperation on development that made them productive for development. The possibility that the period ahead will see growth in the global economy as high as ever before, and from a much higher base, makes the establishment of an effective international regime for greenhouse emissions more urgent than is recognised by the global warming pessimists.*

World Economic Performance - Rao and Ark

http://books.google.co.uk/books?id=ZLs9h6L6U1sC&pg=PA189&dq=%22Contraction+and+Convergence%22+Urgency&hl=en&sa=X&ei=PIzUUY-9Dcru0gX_nYCoAQ&ved=0CDgQ6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22%20Urgency&f=false

We all face an increasingly urgent situation with the threat of runaway rates of climate change occurring and the persistent failure to come to terms internationally to deal with this. COP-15 was another example of this and the odds for COP-16 appear no better as things stand. So we write to you with the request to convene a high-level public meeting to focus on this predicament and the international need to establish a UNFCCC-compliant Global Climate Change Framework to redress this threat as soon as possible.

'Contraction and Convergence' *is a prime example of this. It is a rational formulation for reconciliation of 'Climate Justice without Vengeance'. With the growing support for this approach internationally, we specifically note the positions taken in the UK context by: -*

• The RCEP in 2000 that, "The government should press for a future global climate agreement based on the contraction and convergence approach [C&C], combined with international trading in emission permits. Together, these offer the best long-term prospect of securing equity, economy and international consensus."

• The UNFCCC Executive at COP-9 [2004] - achieving the objective of the UNFCCC "inevitably requires contraction and convergence".

•The Liberal Democrat party that, "an agreement must be based on reducing emissions overall, while equalising emissions between the developed and developing worlds – the principle of contraction and convergence."

• Yourself and what you called the "morally compelling logic" of C&C.

• The All Party Parliamentary Group on Climate Change in the previous parliament.

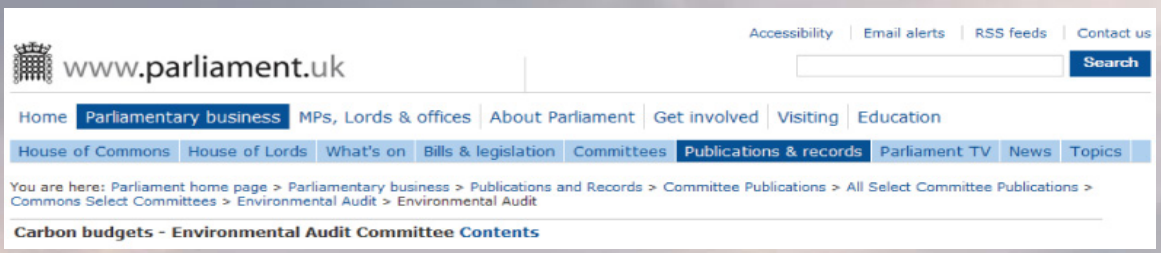
• The UK Climate Act, which Adair Turner effectively characterised as C&C in evidence to the EAC and DECC select committees last year saying that converging to equal per capita entitlements globally is the only option that is, "doable and fair" for organising and sharing the full-term emissions-contraction-event to bring us to UNFCCC-compliance and that "if, for reasons of urgency the rate of global contraction has to be accelerated, for reasons of equity the rate of international convergence has to be accelerated relative to that."

Several ideas derived from C&C have surfaced since Kyoto with ideas that can be perhaps in various ways incorporated into C&C. However, there is an overwhelming need for an over-arching UNFCCC-compliant Framework that enables the globally competing interests of the over-consuming and the under-consuming to be reconciled with each other and with the objective of the UNFCCC in a non-random manner.

We feel that C&C is the veteran and indeed the apex example of this and urge you to consider our request. At Kyoto 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." The adversarial reasons for their withdrawal were in play at COP-15: - http://www.gci.org.uk/public/COP_15_C&C.swf

C&C answers this in a unifying and constitutional way and the need for this answer becomes increasingly critical.

Caroline Lucas MP and 500 other eminent persons -
http://www.gci.org.uk/endorsements_politics.html



Q19 Chair: - *Aubrey, it is a great pleasure to welcome you before this particular Environmental Audit Select Committee. We know that there was a previous opportunity for you to give evidence to our predecessor Committee. Our starting point is your concept of* ***'Contraction andConvergence'****. The starting point for us in the current inquiry that we are doing is whether or not you feel that the Climate Change Act targets as we have them are set in accordance with the principles of C&C.*

Aubrey Meyer: - *As before, the answer is yes and no, and people's opinions vary. As you will remember, in the previous inquiry Adair Turner took a direct question from you on this point and it is all on film, I am happy to say. His answer to your point was they did not call it contraction and convergence in the Climate Act because, if I remember the phrase, it became so "emotional", whatever that meant. But what did come out was that it was very strong support for what GCI had said and done with C&C. So, in respect of the Act, is it C&C or not? In principle, yes. In practice, no, in the sense that the targets that are derived from the UK Climate Act are insufficiently precautionary. We are being too generous with the amount of carbon we can assume we can safely burn into the future, both nationally and internationally.*

Climate Futures

Climate Futures - The Inspiration behind our Corporate Logo

*Our logo was inspired by the **'Contraction and Convergence'** concept and posters that were present at many of the international climate change negotiations that our founder attended after the Kyoto Protocol was agreed in 1997. Developed by the Global Commons Institute in the early 1990s, the Contraction and Convergence strategy consists of reducing overall emissions of greenhouse gases to a safe level (contraction), resulting from every country bringing its emissions per capita to a level which is equal for all countries. It was intended to provide the basis for negotiations of an international agreement with a more stringent target than the Kyoto Protocol. Such action would reduce anthropogenic CO2 emissions to avoid dangerous climate change impacts caused by the greenhouse effect. While politically and perhaps even technologically unfeasible at this time, the concept still serves as an elegant reminder of the challenge humanity faces. It also visualizes the unequal use of our global resources by a minority of the people on the planet, and reminds us that many people still face the daily challenge of access to reliable energy and other basic services that our modern lifestyle takes for granted.*

Climate Futures

http://climatefutures.eu/en/About-us/our-logo/

Global Warming Crisis News for people who care.

Fossil fuel extraction has to be stopped before it does any more damage.

Welcome | 350 News | How to ... | Contact Us | www.350.org

6/2/2013 Independent

Four senior ministers today made one of the most embarrassing admissions of the Labour Government's nine years in office – that the official policy for fighting climate change has failed. Yet, as they did so, a group of MPs will offer a different way forward in the struggle to combat global warming, one which they think is the only alternative. It will mean turning established principles of British economic life upside down. It will mean sacrifices from everyone.

Therefore, they say, it will have to be taken out of politics.. – by Michael McCarthy, Environmental Journalist of the Year In The Independent today, their leader, Colin Challen, the chairman of the All-Party Parliamentary Climate Change Group, sets out the case for abandoning the "business as usual" pursuit of economic growth, which has been the basis of Western economic policy for two hundred years. Instead, he says, we must concentrate our efforts on putting a limit on the emissions of carbon dioxide (CO2) from power stations and motor vehicles that are causing the atmosphere to warm.

The failure holds no mysteries for Mr Challen, the Labour MP for Morley and Rothwell. He points out that the Government's policies, which are well-meant, are indeed lowering the carbon intensity of the economy. But the phenomenon of economic growth means that there are more and more plants, and the cuts are swamped by the growth. It is that growth which must be addressed.

"No amount of economic growth is going to pay for the cost of the damage caused by a new and unstable climate," he said.

He says that the pursuit of growth, which essentially has not changed since Victorian times, is misleading, and the terms need to be redefined. Instead, we need a different policy which looks at how much carbon we can afford to emit. Some scientists think we should stabilise global atmospheric CO 2 concentrations at between 450-550 parts per million to avoid dangerous climate change. Concentrations currently stand at just more than 380ppm, but are rising all the time.

"Domestically, we will need to introduce carbon rationing," he said. "Individuals would get an allowance each year, which would gradually come down."

*Internationally, he would like the system, formalised in the policy known as "**Contraction & Convergence"**, developed by Aubrey Meyer of the Global Commons Institute. That would cut emissions of carbon-rich countries, while allowing those ofcarbon-poor countries to rise, until everyone has the same quota.*

Mr Challen says the approach needs to be based on "actuality" just how much carbon can we afford to emit before climate change brings us disaster? But such moves would require sacrifice on the part of individuals, so a cross-party consensus is essential to obviate the pursuit of short-term political advantage.
http://www.350resources.org.uk/2013/02/06/uk-all-party-parliamentary-climate-change-group-calls-for-carbon-rationing/

The choice between trying to solve the problems through either social or technological solutions is a hotbed of ideological struggle. A good example of where the frontline in this battle lies can be seen in this article, discussing Mark Lynas' road to damascus conversion:

"An issue like pollution, Rand argued, should be accepted as a problem, but only as 'a scientific, technological problem - not a political one'. The way to outsmart the 'ecologists', according to Rand, was by convincing people that environmental problems could be 'solved only by technology' and not by regulation..... And it's a prescription that the neo(liberal)-environmentalists all follow.

In the words of George Monbiot, the message that Brand and Lynas promote is a: 'wildly romantic view of technology, saying it can solve all the complex and difficult economic and political and social problems. We don't need to confront power. We don't need to get entangled in fighting corporations. We don't need to confront economic growth, consumer demand. Technology will solve everything.'

Why the contribution is important

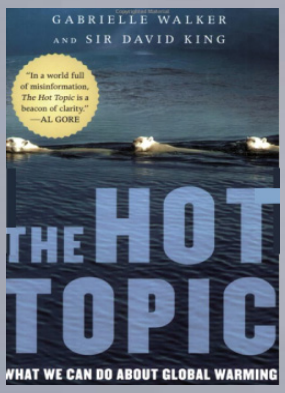
We need to confront a whole range of social and political issues inorder to build a fair and just society to live in in 2050. Resisting climate change cannot be about simply preserving a nice, modern western, middle class lifestyle when much of the world doesn't have this. Whilst there are the wealthy, there will also be the poor.

*"**Contraction & Convergence"** needs to be applied not just to carbon emissions, but to power and wealth as well. Going down a solely/predominantly technological route is unlikely to make this happen.*
http://703.dialogue-app.com/which-future-do-you-prefer/x-vs-y-and-the-underlying-ideological-battlefield

Investor Group on Climate Change
Australia and New Zealand

*We have analysed the extent of emissions reductions necessary for major emitting economies using a "**Contraction & Convergence"** approach and assuming a minus 80% 2050 target for Australia, with the goal of limiting global emissions to 2050 consistent with a 50% probability of limiting warming to two degrees1. Our analysis shows that Australia has a greater relative abatement task than any country featured in the review, including both developed and emerging industrialised economies.*

Response to the Climate Change Authority's
Caps & Targets Review Issues Paper
http://www.gci.org.uk/Documents/IGCC.pdf



*"**Contraction & Convergence"** is the buzz phrase on many negotiators' lips. It has the benefits that every nation is involved from the beginning, that it's a transparent, straightforward concept and that it produces a definite final concentration of greenhouse gases."*

The Hot Topic - David King on C&C
http://www.amazon.com/Hot-Topic-About-Global-Warming/dp/0156033186/ref=sr_1_2?s=gateway&ie=UTF8&qid=1285751219&sr=8-2#reader_0156033186

How do we know our Earth and our ecological limits?

- *Planetary Boundaries and the Anthropocene - Professor Will Steffen*
- *"**Contraction & Convergence"** a policy framework for negotiating international environmental agreements consistent with Planetary Boundaries -*

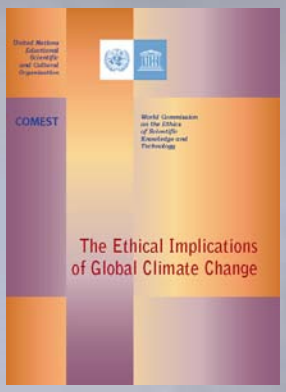
Professor Brendan Mackey
Living within our ecological limits:
law and governance to nurture the Earth community

Wild Law Conference 27-29 September 2013
Ian Hangar Recital Hall, Queensland Conservatorium, Brisbane

Finding a global solution to climate change is not just a technical and economic issue. The solution must also involve social justice, equity and interdependence. It is also an area where Northern Ireland should lead by example.

*The Green Party supports the "**Contraction & Convergence"** framework. Under such a system all countries would eventually converge on the same low emissions per capita. Developed countries would need to contract to that level quickly, while developing countries would contract much more slowly to that level, or in a few cases expand to meet it. This framework provides an opportunity for poorer countries to continue to eliminate poverty through development.*

Green Party Northern Ireland
Response to the DOE consultation
On a Climate Change Bill for Northern Ireland
http://www.gci.org.uk/Documents/green_party.pdf



*"The principle of "**Contraction & Convergence"** refers to the emission of gases contributing to the greenhouse effect. A fair and pragmatic approach, it is argued, would be to move gradually towards quotas that would not be indexed on GDP, as is the case in the Kyoto Protocol, but rather on population, while gradually reducing the permitted total towards the 60% reduction commended by the Intergovernmental Panel on Climate Change (IPCC). Such a principle may be seen as a consequence of both the principles of environmental justice and the principles of earth as global commons. The particular problem whether future emissions allocations should be based on a per capita basis, as the so-called "contraction and convergence" proposal suggests, or on a country basis, might be seen in a different light if humanitarian aid were internationally organized on a basis of each country's ability to pay. The greater duty of rich countries to contribute to such aid might be politically easier to accept than more stringent emission limits imposed on "more polluting" and "past polluting" countries than LDCs (least developed countries), which would also cost "richer" countries more."*

*"**Contraction & Convergence"**(C&C) is the science-based, global climate policy framework proposed to the United Nations since 1990 by the Global Commons Institute (GCI).* http://www.gci.org.uk/briefings/ICE.pdf

UNESCO - The Ethical Implications of Climate Change: A Report by the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) http://www.gci.org.uk/Documents/UNESCO_COMEST_.pdf

Adaptation is very important, but defensive and reactive. There is a much bigger prize: many positive public health policies have the potential to reduce the greenhouse gas emissions (including carbon dioxide) that cause climate change and simultaneously to produce major health co-benefits.

The use of public transport and, particularly, active movement such as cycling and walking as alternatives to private vehicles can reduce carbon dioxide emissions and improve health by reducing obesity, cardiovascular disease, diabetes and many other conditions.

As livestock farming is the single greatest contributor to methane and carbon dioxide production reducing the consumption of meat is a key policy. High levels of saturated fat intake from meat are of course implicated in cardiovascular disease and cancers. To benefit both health & climate, it is suggested that each person eats no more than 100 grams of meat per day and has at least one meat-free day per week.

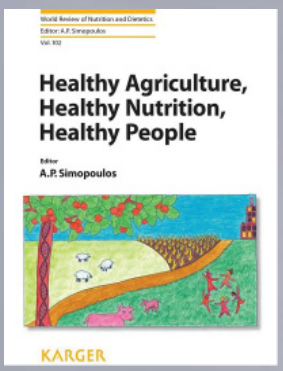
*The reduction of health and social inequalities, locally, nationally and internationally, must underpin the policy response to climate change. The Climate and Health Council's Charter has the "**Contraction and Convergence"** model developed by the Global Commons Institute as its central proposition:*

"There is an unprecedented opportunity to reduce global health inequalities through an international agreement based on social justice, whereby national greenhouse gas emissions converge to equal per capita shares within the planet's sustainable and finite limit. Policies to address climate change can bring greatest health gains to those with the poorest health if they are implemented with health equity and sustainability as central, linked agendas."

It may be determined action to reduce greenhouse gas emissions by communities, rather than by individuals or governments, that offers the greatest hope of avoiding catastrophic consequences from climate change. The international Transition Initiatives movement includes over 150 communities promoting a community response through local food, energy, transport and cultural projects. Transition Initiatives empower individuals, groups and communities: there is a rich public health literature concerning health improvement through community participation to promote both physical and mental wellbeing.

The Transition Movement in Israel should find fertile soil, because community plays such a central role in Israeli life. In summary, Manfred S. Green and colleagues make an important contribution to public health by articulating the evidence on the health impacts of climate change and helping to frame a collective response in Israel and beyond. We encourage policymakers in Israel and elsewhere to undertake both adaptation policies to enhance resilience to adverse climate events and determined action to reduce greenhouse gas emissions.

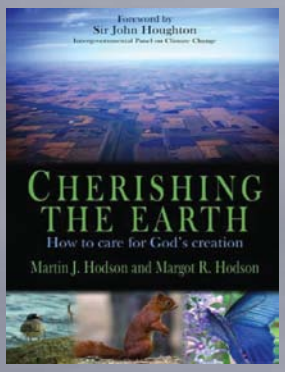
Improving public health by tackling climate change
Jenny Griffiths
http://www.gci.org.uk/Documents/2045-4015-2-22.pdf



Less meat on the plate and fewer livestock in agriculture are two of the most obvious elements of joint guidelines for dietary advice and ecological sustainability. The idea has been around for almost 40 years but the rationale for such joint guidelines is being examined more closely now. Since meat and dairy products provide protein, fats, sugars, and micronutrients the consequences for health of substantially lower intakes are not entirely clear, but they are likely to be mainly positive and manageable.

*Recognizing that moderate intake of animal products can be valuable in preventing malnutrition in developing countries and in certain groups in developed countries, however, McMichael el al. have proposed a policy of "**Contraction and Convergence**" ["an obvioulsy simple and attractive idea"] i.e. reducing intakes in affluent countries and increasing in takes among the poorest so that intakes converge on a global scale.*

Healthy Agriculture Healthy Nutrition Healthy People
A P Simopouluse
http://books.google.co.uk/books?id=LWEaJ9IXZhkC&pg=PA173&dq=%22Contraction+and+Convergence%22+Strategy&hl=en&sa=X&ei=89HLUcvAH8ao0wWm2oHYCQ&ved=0CF4Q6AEwCTgo#v=onepage&q=%22Contraction%20and%20Convergence%22%20Strategy&f=false

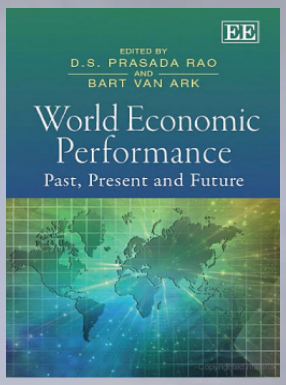


It will be impossible for developing countries to modernize without using more energy. Significant financial investment will be required if these new energy sources are to be renewable rather than carbon-based, and some will wish to use their own available fossil fuels. In Chapter 8 we saw that some governments are actively considering some form of carbon rationing for individuals, possibly a personal carbon allowance.

*"**Contraction and Convergence**" (C&C) is an extension of this idea to the international arena. The idea is relatively simple in principle, & was first proposed by Aubrey Meyer of the Global Commons Institute (GCI).*

First, we need to agree on a level of carbon dioxide in the atmosphere as a target. Then we calculate how much carbon dioxide each person on the planet can be allowed if everyone is to have an equal share. Each country would be allowed this amount multiplied by the number of its citizens. If the target CO2 concentration in the atmosphere was fixed at a level of 450 ppm by 2100 (the level suggested by GCI, this would undoubtedly mean that the Western industrialized nations would need to decrease their emissions very markedly. The developing nations would, however, have some room to increase their emissions to enable them to industrialize. If a nation wanted to emit more CO2 than its target then it would have to buy credits from a country that was emitting less than its goal. So this is a just system, where everyone would be treated equally. Not surprisingly, many of the industrialized nations are not that keen, and the developing nations quite like the idea. Whether it will ever be implemented will depend on how much our governments pressurize the international community, & how much we pressurize our govemments.

Cherishing the Earth M & M Hodson
http://www.amazon.com/Cherishing-Earth-Environmental-Christian-Message/dp/1854248413/ref=sr_1_77?s=books&ie=UTF8&qid=1372304368&sr=1-77&keywords=%22Contraction+and+Convergence%22#reader_1854248413

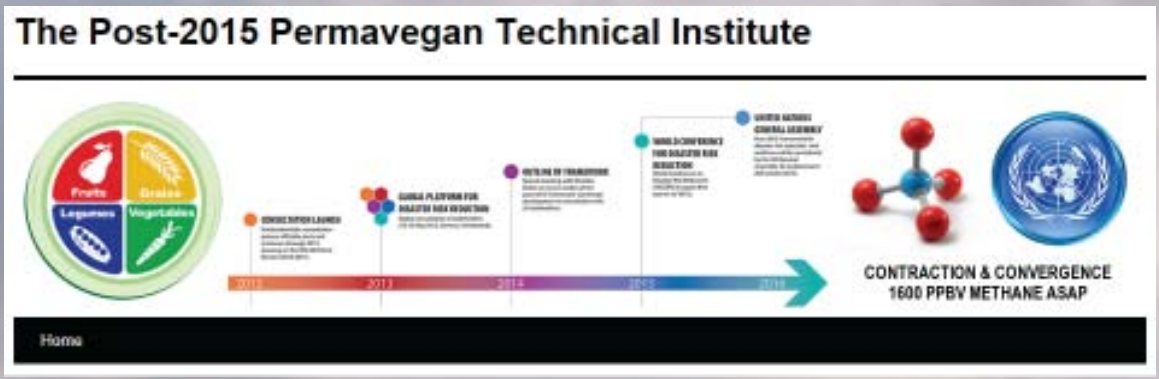


I recall a conversation with leading environmental officials in China in the early 1990s, in which my Chinese inter-locuters stated that human-induced global warming was a substantial problem that required a global response. They said then that China would accept controls on levels of greenhouse emissions and be ready to join a global system for trading emissions rights, so long as the starting point was equal per capita initial rights.

*This is not in itself an unreasonable position but it would provide no basis for agreement with developed countries. Eventual agreement must be sought somewhere between the 'established levels' and the 'equal per capita' bases for initial allocations. I have supported suggestions for building an international regime around the idea of "**Contraction and Convergence"** with rights allocated on the basis of established emissions, with some additional restrictions on developed countries and headroom for developing countries over a long transition period, there would be a shift towards equal per capita allocations.*

Such a system would involve large transfers of income to countries whose per capita incomes and emissions remained well below global average levels. It would be important for continued international support for the system that these transfers be embedded into a framework of international cooperation on development that made them productive for development.

World Economic Performance Past Present and Future
Prasad Rao Bart van Ark



President Obama's June 2013 Climate Plan and speech at Georgetown University signal a breakthrough in White House strategy. But the President is still dangerously off course.

Instead of continued US "leadership," we need a new era of multilateral US cooperation on five critical responses to the climate crisis: -

1. Emergency reduction of atmospheric methane toward a Kyoto II confidence-building target of at least 1600 ppbv to slow the pace of Arctic system overheating;

2. Vegan ecological transition to promote deep resilience in the energy, food, forest, healthcare and water sectors;

*3." **Contraction and Convergence"** for timely and equitable management of fossil fuel emissions worldwide;*

4. Ratification of the Rome Statute and recognition of compulsory jurisdiction under the International Court of Justice to strengthen the multilateral rule of environmental law;

5. Monetary reform to stabilize the financial system and protect long-term returns on investment in climate change mitigation and adaptation.

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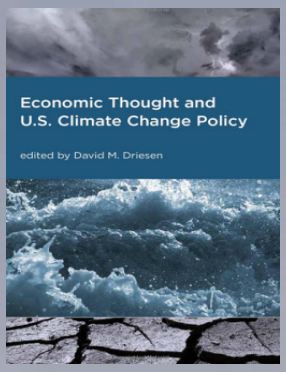


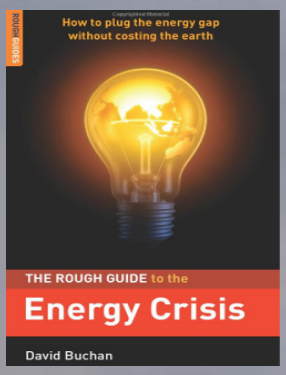
*A number of academics and policy analysts have proposed some version of this idea. The Global Commons Institute has been advocating it in international climate negotiations since1990, under the name "**Contraction and Convergence".** Under their proposal, the developed nations would be given an adjustment period of several decades during which time they would "contract" their emissions until the world finally "converged" on a uniform per capita allocation. Their proposal has been endorsed by a number of governmental and nongovernmental organizations, including the European parliament and India. The general approach has been endorsed by German Chancellor, Angela Merkel among others. GCI has suggested setting a deadline of either 2020 or 2050 for reaching an equal shares allotment.*

See GCI briefing
Economic Thought and U.S. Climate Change Policy
David M. Driesen
http://www.amazon.co.uk/Economic-Thought-American-Comparative-Environmental/dp/0262042525/ref=sr_1_48?s=books&ie=UTF8&qid=1297965785&sr=1-48#_

Any post-2015 consensus becomes even more fragmented when it comes to distributing our natural resources or 'global commons'. Scarred by the climate change negotiations, or in some case sceptical about proposed biophysical thresholds,35 some advocates recommend that the politics of benefit and burden sharing of our environmental services are restricted to other intergovernmental negotiation processes. The HLP reiterates the commitment to "hold the increase in global average temperatures below 2 degrees Centigrade above preindustrial levels, in line with international agreements" and acknowledges ecological limits more broadly, but does not use the concept of planetary boundaries as a founding principle for their framework.

*On the other side of the debate, many NGOs informed by work on planetary boundaries are advocating "**Contraction and Convergence"**models. For example, Alex Evans argues that incorporating planetary boundaries at the heart of the post 2015 framework would "send an unambiguous signal about the need for fair shares to natural assets"36 thereby helping to release the political deadlock of the climate change negotiations. However, scientist Johan Rockstrom and economist Jeffrey Sachs raise concerns over contraction and convergence models because "it seems impossible that politicians in rich countries would ever agree to drastically lower the standard of living". This, they argue, implies that developing countries will be capped at "a level of income that is below the income enjoyed by rich countries". In response, Evans argues that the "**Contraction and Convergence"** model applies to key resources and ecosystems rather than per capita incomes.*

Post 2015 International Development Goals IIED
http://www.gci.org.uk/Documents/17162IIED.pdf



*If the process of differentiated emission or fossil-fuel-based energy cuts were to continue, it could theoretically one day lead to everyone in the world having the same level of greenhouse-gas emissions per head. This is the hope of the Global Commons Institute, which came up in 1995 with their "**Contraction and Convergence"** proposal. Their idea is that overall emissions should contract to a safe level, and that per capita emissions should converge to the same level for all, It can hardly be faulted on moral grounds.*

But the political feasibility of persuading north Americans, Europeans and Australasians to agree to massive cuts in emissions which, if low-carbon energy cannot match the potency of today's fossil fuels, will compromise their current lifestyles, so that China and India can raise their standard of living is quite another matter. That is why we need action on the supply side.

A Rough Guide to the Energy Crisis
David Buchan http://www.amazon.com/Rough-Energy-Crisis-Guides-Series/dp/1848364121/ref=sr_1_1?ie=UTF8&qid=1371202264&sr=8-1&keywords=The+Rough+Guide+to+the+Energy+Crisis#reader_1848364121

Klimatkatastrophe Ulfried Weisser
Slightly awkward translation from Geman original http://books.google.co.uk/books?id=CnbtpOIepXkC&pg=PA206&dq=%22Contraction+and+Convergence%22+MIT&hl=en&sa=X&ei=x_i1UaG5D-qQ0QWIkYDIBA&ved=0CEAQ6AEwAg#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false

Rahmstorf & Schellnhuber point out that in the Anglo-American enjoys a great reputation in related approach relevant environmental circles.

*This is the book "**Contraction and Convergence"** - The Global Solution to Climate Change by Aubrey Meyer. Here a global framework for reducing greenhouse gases is proposed to confront climate change, of which the Entwieklungslander will be even stronger than the developed countries concerned. Again, it is required global emission per head of population should be heruntergesehraubt to a safe, and indeed for all nations equal, level. This involves initially the convergence, namely 2030 to ail States bring their per capita emissions to the same level: India geringfugigen by a rise in the U.S. by a dramatischen Case.*

Is then given by approximation (convergence) of the Gleiehstand reached, to the emission of CO2 by a decrease (contraction) in the totality of all countries in lockstep lowered, until about the year 2100 to the level of 1930 and continue until the year 2200 to the pre-industrial levels by 1870. It should be achieved near the zero line. - If you expect that the dangerous increase of greenhouse gas emissions began with the industrialization, must consequently seek to reduce the overall menschlichc company to pre-industrial levels.

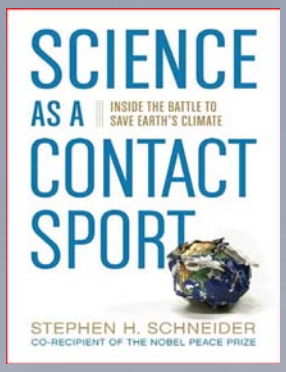
*This approach con "**Contraction and Convergence"** is known as a C&C to the parties involved. It is from the Global Commons Institute based in London, which was founded in 1990 by Aubrey Meyer. Many carriers and employees of this institution belong to the Green Party for England and Wales, which achieved a seat in the House in the most recent general election. The Institute's motto Climate Justice without Vengeance. "**Contraction and Convergence"** is the scientific climate policy framework, says the institution in its German translation of these objectives. The scientific end levels over the Beziellllllg between an economy and zero-emission concentrations (mean: of greenhouse gases in the Atmospare UW) constantly evolving, the C & C rates can therefore be revised periodically and continuously developed.*

Here, as in the circles of the German climate researchers assumed that a particular political action is scientifically begrundbar. Ultimate goal here an emission-free Wirtsehaft. That was to say that the power supply is switched to 100 percent renewable energy.

The Global Commons Institute can be very proud: -

The British Royal Comsission on Environmental Pollution & the German Scientific Advisory Council on Global Envrionmental Change both expressed climate change recommendations to their governments as C&C & the European Parliament voted for a C&C resolution in 1998.

*"The Kyoto agreements have been widely dismissed - with a goodly dose of irony - as 'hot air'. Apologists for them offer several arguments in their favour by way of riposte. It has been said, for instance, that they are, above all, a learning process. In the post-2012 period, the world can come up with more universal and rigorous formulae - negotiations for a post-Kyoto regime are already under way; they began in Bali in 2007. The principle of 'common but differentiated responsibility', it is argued, provides a way forward for the world community. **Contraction and Convergence** puts flesh on this idea. C&C - whereby developed countries reduce their emissions first, and radically, with poorer countries following suit as they become richer - is a necessary point of connection between the two types of development. There are different versions of this idea around, but the underlying principle is simple. Developed countries aim to make large cuts in their greenhouse gas emissions, starting now. Developing nations can increase their emissions for a period in order to permit growth, after which they must begin to reduce them. The 2 groups of countries will then progressively converge.*



A view of the UN Climate negotiations in 1996 . . . .

*One particularly visible environmental NGO was the Global Commons Institute from the United Kingdom. Its charismatic leader, Aubrey Meyer, became a darling of developing countries by pushing for "**Contraction and Convergence"**. This called for the overall planetary emissions to contract to much lower levels by mid-Century and for the low per capita emissions in poor countries to converge with the higher emissions in rich countries, as a measure of equity. This analysis was not popular with economists, since it was basically an idea presented via great graphics, but it was not based on an accepted economic model calculation making costs and benefits explicit. Regardless of its merits, it is a good example of the kinds of ideas that were kicked around in the informal sessions held before the governments got together in closed-door sessions to hammer out protocol language for the Conference of the Parties (COP). Many of these events were well covered by the international media.*

Science as a Contact Sport - Stephen Schneider
http://books.google.co.uk/books?id=gC2xlxwYfYkC&pg=PA158&dq=%22Contraction+and+Convergence%22+US+Senate&hl=en&sa=X&ei=A6CwUZnHOciC4gS-u4CIBA&ved=0CFAQ6AEwBQ#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false

Steve died of a heart attack on the 19th July 2010. An obituary appeared in the Guardian. He was young and for many this was a sad loss of a great champion. However, he left a great legacy of work on climate change where he remained a soft and gentle C&C advocate: -

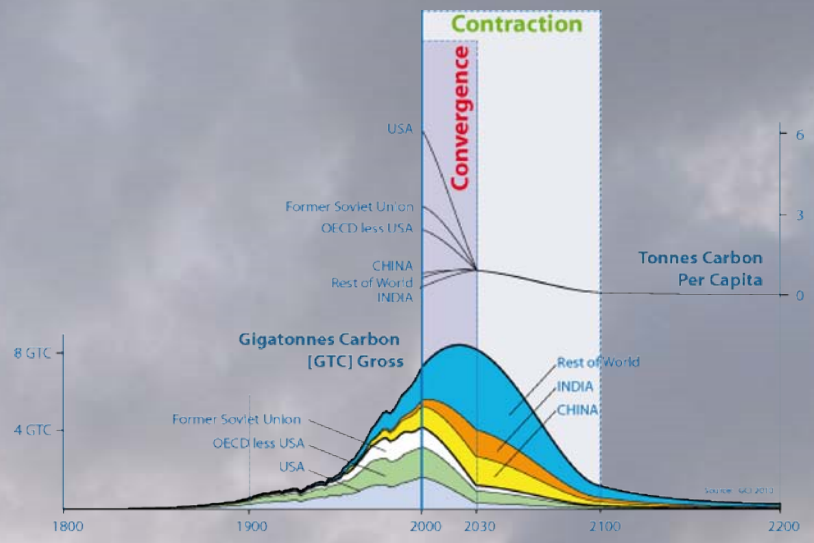
"Future international climate change agreements should certainly consider the contributions of the developed (high per capita emissions) versus developing (low per capita emissions) countries to climate change.

*Aubrey Meyer of the Global Commons Institute has long argued for the principle of "**Contraction and Convergence"**. "Contraction" entails the shrinking of the developed countries' "share" of CO2 and other greenhouse gas emissions. In Meyer's view, rich countries, who are appropriating a disproportionate fraction of the atmospheric commons, need to cut back their emissions and allow poorer countries to emit more and catch up.*

Eventually, the two groups will "converge" at a level at which per capita emissions will be equal across nations while at the same time meeting "climate safe" emissions targets for the world as a whole (see "Trading Up to Climate Security")."

Slicing up the pie With energy exploration and production companies and stocks so integral to world markets - how can we, on one hand, demand ambitious climate policy while, on the other hand, expect government revenue and pensions to be propped up by the returns from fossil fuel? We are creating a problem and will eventually need to pay for it. Furthermore, while it will probably be less than ideal, aggressive climate policy is inevitable in the coming decades. There will eventually be a limit. Who will be able to draw upon the "remaining" reserves and when will they be able to do it?

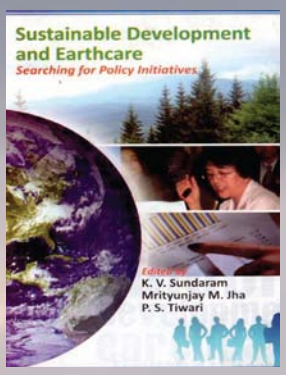
*The issue reminds me of the concept of "**Contraction and Convergence"** whereby international treaties will expect developed nations to steadily reduce their GHG emissions while poorer countries are are "allowed" to catch up and then level off their emission. Source: Global Commons Institute.*



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

This concept, along with international emissions treaties, divides and allocates the use of the atmosphere, a global commons, according to varying conceptions of justice. On the flip side and for a private good, perhaps a "contraction and convergence" energy extraction budget could be used to divvy up the remaining fossil fuel reserves that are "allowed" to be extracted? With low-carbon gas at the top of the extraction queue and high carbon coal at the bottom, the economic and political stakes are very high.

Political Climate
http://www.politicalclimate.ca/2013/06/how-would-world-energy-budget-be-sorted.html



Among the International Concerns aimed at multilateral efforts, a major one to be addressed is climate change. The air we breathe belongs to everyone, but the extent or 'space' to which it can be polluted by emissions like Carbon-dioxide (CO) and other greenhouse gases (GHG), is finite and limited. According to one estimate, India is now the World's fifth largest fossil fuel CO2 emitting country, the emissions having grown at 6 per cent a year since 1950 (Karunakaran, 2002). The only solution, by which the emissions could be contained within reasonable limits, will be by sharing this 'space' among all nations on some equitable basis.

*According to the strategy of "**Contraction & Convergence"** the rich countries should contract their emission levels, to a maximum extent (as they are the greatest polluters), while the poor countries may be allowed, (for the sake of developing their economies) to increase their emissions to a reasonable level. The per capita emission and the time for adjusting to safe levels of CO2 concentration are matters to be negotiated internationally. This strategy will hopefully lead to a just and legally-binding framework for global safety and saving the world from a looming catastrophe. While some developed countries like Denmark, The Netherlands, United Kingdom and Japan have endorsed this principle of 'contraction and convergence' at the Kyoto discussions, some others like U.S.A., who are the worst polluters, have not agreed to do so.*

Sustainable Development and Earthcare
K V Sundaram Mrityunjay Mohan Jha, Prem Shankar Tiwari
http://books.google.co.uk/books?id=pt7jJDJiMbUC&pg=PA30&dq=%22Contraction+and+Convergence%22+Health&hl=en&sa=X&ei=c3mxUYWqJKGT0AXm9oGwDg&ved=0CFAQ6AEwBjg8#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false

One of the proposed UN Sustainable Development Goals aims to "reduce inequality while moving towards sustainable consumption and production". The environmental constraints imposed by climate change and finite natural resources bring an added dimension to the effort to reduce poverty and inequality. Twentieth century tools such as trickle-down economics, deregulation, resource-based growth and inept global governance are no longer suitable.

*One solution is **'Contraction and Convergence'**, developed by the Global Commons Institute. This calls for industrialised countries to reduce their emissions while developing countries increase theirs to allow for development and poverty reduction.*

Dr David King
Senior lecturer in General Practice, University of Queensland
In the Medical Observer

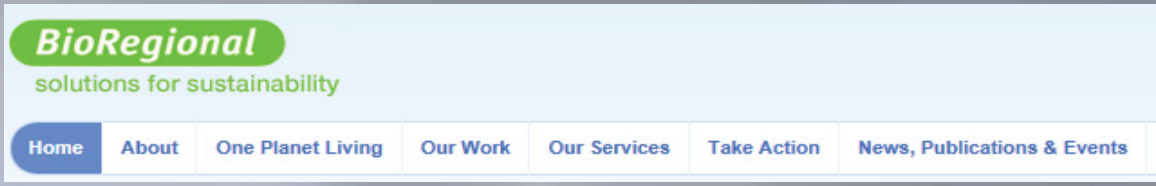
*Under **'Contraction and Convergence'** (C&C) (GCI 2005; Meyer 2000), all countries participate in the regime with quantified emission targets. As a first step, all countries agree on a path of future global emissions that leads to an agreed long-term stabilisation level for greenhouse gas concentrations ('contraction'). As a second step, the targets for individual countries are set in such a way that per capita emission allowances converge from the countries' current levels to a level equal for all countries within a given period ('convergence'). The convergence level is calculated at a level that resulting global emissions follow the agreed global emission path. It might be more difficult for some countries to reduce emissions compared to others, for example, due to climatic conditions or resource availability. Therefore, emission trading could be allowed to level off differences between allowances and actual emissions. However, C&C does not explicitly provide for emission trading. As current per-capita emissions differ greatly between countries some developing countries with very low per capita emissions, could be allocated more emission allowances than necessary to cover their emissions ('hot air'). This would generate a flow of resources from developed to developing countries if these emission allowances are traded.*

Emerging Economies - Potentials, Pledges and Fair Shares of GHG Reductions - ENVIRONMENTAL RESEARCH OF THE GERMAN FEDERAL MINISTRY OF THE ENVIRONMENT, NATURE CONSERVATION & NUCLEAR SAFETY http://www.gci.org.uk/Documents/4483.pdf

*By the stage of the Johannesburg Conference of 2002, Odera would also have been aware of the suggested criterion for the distribution of greenhouse gas emission entitlements, namely that every human being alive should have an equal entitlement to every other, and of the related programme for the application of this criterion to the international scene, that of **'Contraction and Convergence'** .*

This idea was conceived in the mid-1990s by the London-based Global Commons Institute (GCI), which had been founded in 1990 by Aubrey Meyer, a musician turned environmental campaigner, whose book Contraction & Convergence, The Global Solution to Climate Change was republished in 2005 (Meyer 2005). Contraction and Convergence has won the support of a number of governments, and remains a possible basis for a world agreement on climate change.

HURIA Journal of the Open University of Tanzania
http://www.gci.org.uk/Documents/HURIA.pdf

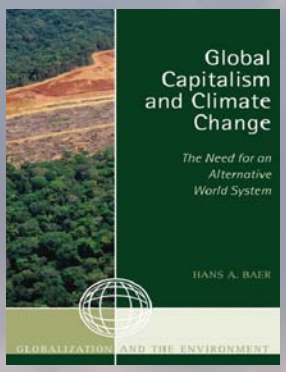


BioRegional's recommendations to the High-Level Panel on the post-2015 development agenda

Transferable learning from a successful civil society sustainable development framework. Equity as a cross-cutting principle or over-arching goal. All goals should be based on the principle that developed countries become more resource efficient, whilst developed countries grow in a sustainable and resource efficient way. BioRegional uses ***'Contraction and Convergence'*** *of ecological and carbon footprint as one indicator for this.*

One Planet Living is based on people, what they need and what they consume. It is a sustainable development framework that is transferable across sectors and can be implemented at all scales- from individuals, to the London 2012 Olympic and Paralympic Games, to construction and retail companies, to cities and municipalities and at the national level. It is a simple, holistic framework that encompasses ten integrated social, economic and environmental principles, where each principle contains specific sustainability targets and indicators.

One Planet Living
Sustainable development framework and implementation tool
http://www.gci.org.uk/Documents/BioRegionals-recommendations-to-the-HLP-on-the-post-2015-development-agenda.pdf



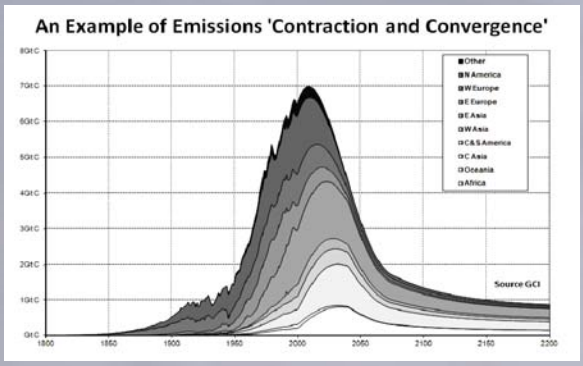
'Contraction and Convergence' *and asserts that every human on Earth has equal rights to global atmosphere and a right to pollute on a per capita basis. This approach has been favored by India, China, and the Group of 77, which actually consists of about 133 nations. It has also been endorsed by France, Switzerland, and the European Union, despite the fact that developed countries will have to drastically reduce their emissions because most of them have already exceeded the requisite stabilization targets.* ***'Contraction and Convergence'*** *approach was first proposed by the Global Commons Institute [Jarman 2007].*

Global Capitalism and Climate Change
Hans A Baer
http://books.google.co.uk/books?id=YH86IFKTEr4C&pg=PA200&dq=%22Contraction+and+Convergence%22&hl=en&sa=X&ei=IhX5UOGmKtDY0QWO14D4Ag&ved=0CEcQ6AEwBA#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false

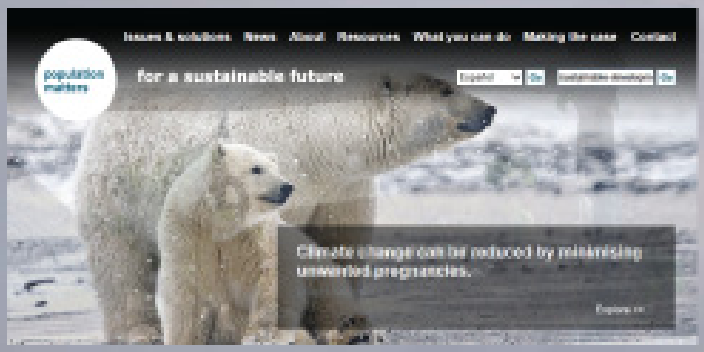
Certificate egalitarianism, popularized by the Global Commons Institute under the name of ***'Contraction and Convergence'*** *aims at an equal distribution of emission certificates to all persons (convergence) over the medium term, where the sum of the certificates is defined by a global reduction target (contraction). Certificate egalitarianism is a specific precept (dealing only with certificate distribution), which may be justified as an application of the (primary) moral principle 'resource egalitarianism'.Welfare egalitarianism, which is another (primary) moral principle, on the other hand, will not lead to certificate egalitarianism because an equal number of certificates for different people will often lead to different levels of wellbeing or welfare. Certificate egalitarianism has found many supporters among theoreticians. In this legalistic language, it also follows however, that an unqeual number of certificates for different people will not necessarily sum to a contraction event that is consistent with the reduction target. The point is that C&C is not about 'egalitariansim', it is about UNFCCC-compliance and the absolute requirement of a reduction target for that, a point that is frequently - even routinely - lost by great minds.*

Intergenerational Justice Review
http://www.gci.org.uk/Documents/igjr_03_09.pdf

*The **'Contraction and Convergence'** model (C&C), developed by the Global Commons Institute, seeks to reconcile the goals of greenhouse gas stabilisation and international equity. Figure 7.3 illustrates one possible scenario for projected emissions from various regions of the globe were the model to be adopted.*



Environmental Policy (Routledge Introductions to Environment)
Jane Roberts http://www.amazon.co.uk/Environmental-Policy-Routledge-Introductions-Environment/dp/041549785X/ref=sr_1_22?s=books&ie=UTF8&qid=1297509863&sr=1-22#_

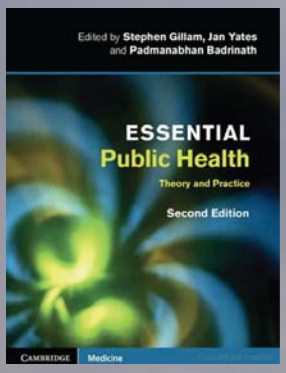


*In the climate change talks, we support contraction and convergence between rich and poor countries, with a population base year. (cf Kofi Annan: **'Contraction and Convergence'** with a population base year should be the basis for [climate equity]. Key Recommendation, GHF 2009).*

We also support convergence as a poverty alleviation goal, between and within countries, as this would tend to reduce the birth rate, as well as gross income inequality. Under the MDGs, the proportion of people living in extreme poverty i.e. under $1.25 per day fell by half from 1990 to 2010. However, a smaller proportion of a larger number can still be a larger number, as has happened in Africa; and it is numbers of people, not rates or proportions, that need ever-increasing food, water, soil, energy etc.

SDG: Reduce the number of people in extreme poverty by half, through economic growth in the poorest countries, contraction and convergence between countries, and reduction of income inequality within countries.

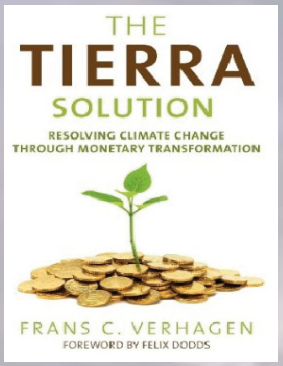
Sustainable Development Goals Population Matters
http://www.gci.org.uk/Documents/Population-Matters-SDGs-Proposal_pp207_1.pdf



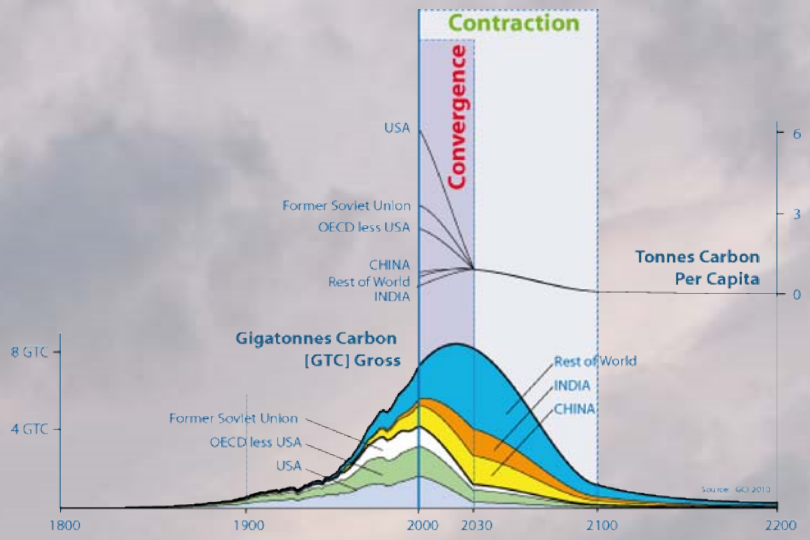
Food (above) is a good example of how we can redistribute resources in the interests of everyone, both now and in the future. Sadly, too many people seem to believe that one person's (their) good fortune relies on another's misfortune - often someone far away of whom they know little and care less. The obvious (and growing) interdependence of us all, both with each other and the biosphere that supports us, should make us understand that it is in no-one's interest to have gross disparities in needs and opportunities. Water, the lack of which kills most quickly, is perhaps the resource that is (and will) cause most conflict, as there is no alternative. But oil is the resource where we have the most potential to address our dangerous dependency. Decarbonising the global energy supply means a range of renewable resources. One of these (concentrated solar power from the world's deserts coupled with a global electricity grid) has the potential to move energy from the warmest (and often poorest communities) in the world to the more industrialised countries, and crucially to move resources to pay for it back again, whilst promoting energy security; sec, for example, the work of the Desertec Foundation.

*This is possibly the only practical strategy that improves health, promotes social justice, and is integrated with workable economic models such as **'Contraction and Convergence'** (a proposed global framework for reducing greenhouse gas emissions that combats climate change at the same time as promoting social justice; see. Within health services globally, health professionals and health systems have huge potential to exploit some of these opportunities for the health of people today and the health of*
populations in the future (and elsewhere now).

Essential Public Health
Stephen Gillam, Jan Yates and Padmanabhan Badrinath
http://books.google.co.uk/books?id=X3T2b3ZHHHkC&pg=PA306&dq=%22Contraction+and+Convergence%22+Security&hl=en&sa=X&ei=CS-JUdiGG8-z0QXB14G4BQ&ved=0CGIQ6AEwBw#v=onepage&q=%22Contraction%20and%20Convergence%22%20Security&f=false



***'Contraction and Convergence'**(C&C), pioneered in the early 1990s by the Global Commons Institute (UK-based independent organization campaigning for climate change). Contraction refers to the process of reducing carbon emissions; convergence refers to the coming together of the emissions levels of industrialized and developing countries. C&C posits a contraction period for high-carbon nations, which allows them to converge with low-carbon nations, after which the equal sharing can begin. It is only when the high-carbon countries have decreased their carbon footprint and the low-carbon countries have reached their low-carbon and high-growth-development levels that convergence can take place. 'This convergence period would take place around 2030, according to the graph: -*

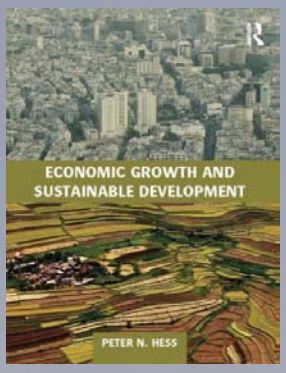


This example shows regionally negotiated rates of C&C.
It is for a 450ppmv Contraction Budget, with Convergence by 2030.

C&C is an idea that has been gaining a lot of ground over recent years, with much to recommend it above the cap-and-trade approach of the Kyoto Protocol:

- *It sets firm global caps*
- *It includes all countries in its framework,*
- *It spells out the 'equity principle' the fair principle - implicit in the allocation of emissions rights to countries on a per capita basis.*

The TIERRA Solution Francis Verhagen
http://books.google.co.uk/books?id=bb1u0HeKtusC&printsec=frontcover&dq=%22Tierra+solution%22&hl=en&sa=X&ei=Sh0NUIeqLozB0gW6kszfCg&ved=0CC8Q6AEwAA#v=onepage&q=%22Tierra%20solution%22&f=false

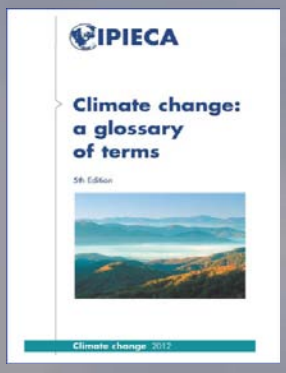


Even if there is a consensus on the goal of limiting CO2 concentrations in the atmosphere to 450 ppm, how to achieve this target equitably and efficiently is contentious. One scheme, known as ***'Contraction and Convergence'*** *involves setting a global target for CO2 concentrations and determining the per capita emissions consistent with attaining this goal (Coley 2008) he underlying premise is that every person on the planet should have the right to emit same amount of carbon- a premise compatible with Rawls's veil of ignorance. Many low-income nations would be allowed to increase their carbon emissions as their economies grow. High-income economies and many other developing economies would have to reduce their carbon emissions.*

Countries would be issued marketable carbon renni15 consistent with the scheduled global reductions in CO2 emissions and the goal 0 converging to common per capita carbon emissions. Reducing annual carbon emissions, however, can be compatible with economic growth if accompanied by advances in energy efficiency and effective mitigation. Since the annual number of global carbon credits would be reduced over time, the market value of the credits would increase. Clean energy and technologies to reduce carbon emissions would be stimulated. Developing countries well below the common convergence target, of say 0.4 tons of carbon emissions per capita (which is less than 10 percent of the world average for 2008 of 4.8 tons per capita), would be allowed to grow and could sell their surplus carbon credits to the developed countries, presently consuming well above the common carbon emissions target.

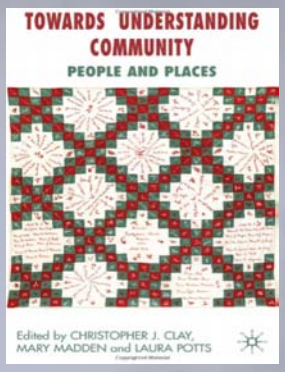
While this global cap and trade scheme for carbon emissions is straightforward in theory, there are dearly a number of challenges, not the least of which will be getting the developed nations to comply. With no supranational authority to enforce international treaties, compliance across nations is voluntary. As evidenced by the earlier Kyoto Protocol (never accepted by the US), which only set voluntary targets for individual countries to reduce CO2 emissions, and the disappointing resolution of the Copenhagen Climate Conference in December of 2009, national sovereignty continues to trump international cooperation. Even if all nations were to accept the idea of contraction and convergence with marketable carbon emission permits, distributing the permits, monitoring compliance, and enforcing sanctions would require new international authority, perhaps an International Environmental Fund, modelled after the International Monetary Fund. Underlying such unprecedented international cooperation would have to be fundamental changes in the perspectives and priorities of the human race.

Economic Growth & Sustainable Development
Peter Neal Hess
http://books.google.co.uk/books?id=YOuYlPV2MQEC&printsec=frontcover#v=onepage&q&f=false



Some have promoted the idea of ***'Contraction and Convergence'*** *as a long-term strategy for managing global GHG emissions. Contraction refers to a declining global cap which would be set on worldwide emissions, together with a reduction trajectory over many decades. Typically, emissions entitlements would be allocated to nations by a formula that would converge over time towards equal per capita emission rights. Proponents of the system of contraction and convergence argue that it is equitable - being based on population - and that it would be truly global, involving the participation of all countries.*

Contraction and Convergence IPIECA 2012
http://www.amazon.com/Climate-change-glossary-terms-Ipieca/dp/1480129658/ref=sr_1_5?s=books&ie=UTF8&qid=1367582309&sr=1-5&keywords=%22Contraction+and+Convergence%22#reader_1480129658



Some progress is being made towards change in the UK as some of the examples given here show, but the biggest losers from the climate change/unsustainable communities gamble are in the developing world or global south. Those countries who are presently contributing least to global warming will be the ones who will feel the full force of its impacts first, and it is these countries who are offering a solution to the failing global action on climate change. The Global Commons Institute (GCI) presented an agenda for solving the global crisis of climate change at the Second World Climate Conference in 1990. This was called, Equity for Survival. Gel argued that, 'whilst the traditional proposition of equity for its own sake was a dream, unless the new and more rigorous proposition of equity for survival was adopted, the nightmare of global climate de-stabilisation would follow' (GCI website 2006). In 1996 GCI devised a greenhouse gas abatement methodology based on Equity and Survival called ***'Contraction and Convergence'*** *- GCI argue: -*

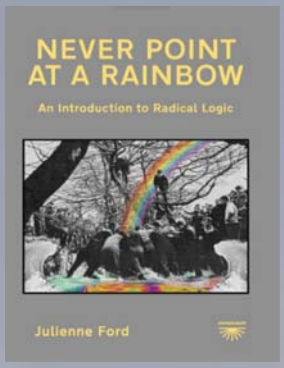
"Limits to growth - certainly of fossil fuel consumption - must now be observed if we are to avoid this climate crisis. Unt.il now however, the limits-free expectations encouraged by the success of laissez-faire economics have been obscuring this. It will be impossible to observe these limits unless, from now on, implementation is internationally configured in a way which corrects the skewed distribution between the rich and poor. This converts a merely moral dilemma into a moral imperative. Because everyone - regardless of status - is now increasingly vulnerable to the impacts of climate change, the rich have little choice but to share the burden of contraction fairly."(GCI website 2006)

A framework such as ***'Contraction and Convergence'*** *could be the late solution that those advocating sustainable development have been looking for. It is a way to ensure that the hardest part of the sustainable development balancing act - that of protecting the environment - is tackled properly. Its implementation and impact remain to be seen post-Stern.*

Essentially the GCI felt that, ***'Contraction and Convergence'*** *is the only long-term framework for regulating greenhouse gas (GHG) emissions which does not make carbon dioxide production a luxury that only rich nations can afford' (Meyer 2006). Contraction and Convergence appears to provide a straightforward model for an international agreement on greenhouse gas emissions. It sets stable and safe targets for greenhouse gases in the atmosphere and a date by which those concentrations should be achieved; all based on best-scientific evidence. The atmosphere is regarded as a 'global good' and Contraction and Convergence states that everyone on earth has a right to emit, and under the framework will be given an equal right by a future date. This allowance for each individual will be derived from the safe global targets: 'So from the grossly inequitable situation we have now, per capita emissions from each country will "converge at a far more equitable level in the future; while the global total of emissions will "contract'" (Meyer 2006).*

'Contraction and Convergence' *was starting to be seen as a 'plan B' for climate change by 2003 and has been increasingly gaining support: The idea has been around for a decade, but lately it has been gaining ever more influential converts, such as the UK's Royal Commission on Environmental Pollution, the UN Environment Programme, the European Parliament and the German Advisory Council on Global Change, which last week released a report supporting the idea (Pearce 2003).*

Towards Understanding Community People & Places
Christopher Mary Madden Laura Potts
http://www.amazon.com/dp/0230542646/ref=rdr_ext_tmb#reader_0230542646



*In his book, '**Contraction and Convergence'**, Meyer tells the story of GCI's battle to construct an international global solution to the global problem.*

First GCI set about demonstrating the correlation between C02 emissions from fossil fuel burning and per capita income over time. In the process they decisively demolished the argument of the business-as-usual economists who have always claimed that the more "developed" nations are more "efficient" than the lower income countries because they create more income per tonne of fossil fuel burned. On the contrary, Meyer, Cooper and Bradney analysed the historical records and demonstrated that "high-income/high-emissions economies produce and consume less efficiently in terms of dollars-worth of goods and services delivered per tonne of carbon burned than do low income countries with a low emissions impact". Indeed they showed that this pattern is systemic rather than merely accidental.

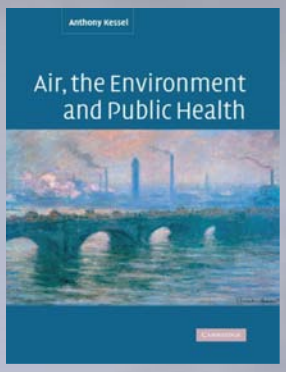
So the polarised consumption patterns we have sustained (and concealed) globally since at least the end of the last war are the results of the way that a structurally dysfunctional global economic system has operated. Certainly the under-consumption of [poorer nations] has been consistently concealed by the over-consumption of [richer nations], who, although they were out-numbered two to one by the [poor ones1, had fifteen times the hard currency purchasing power.

Meyer and his colleagues even managed to demonstrate, to the embarrassment of opponents of the anthropogenic thesis, that the calculations that had been used to claim that ameliorating action was too expensive were based on undervaluation of the lives of people in the poor countries "because their ability to buy the right to live was only a fifteenth of those in countries where productivity had been boosted by the use of fossil fuels".

Once the cloak of phony science and distorted economics was ripped away, the underlying obstacle to controlling global pollution was revealed. Without its cloak of invisibility the business-as-usual paradigm was shown in all its age-old nakedness as the fundamental struggle between exploiters and exploited. On the one hand the underdogs (and the socialist, communist, and environmental internationalists, and the NGOs who supported them) made clear their moral case: why should they be curbed in their fuel consumption and prevented from the benefits of industrial development and economic growth that had fattened the imperial powers? On the other hand the expropriators themselves, especially the Anglo-Saxons on both sides of the Atlantic, dug their heels in, and refused to consider cutting even their projected rate of increase in C02 emissions if the "developing world" (specifically China, India and Brazil) was going to be allowed to develop all the dirty old technology that they had themselves pioneered and deployed without restraint.

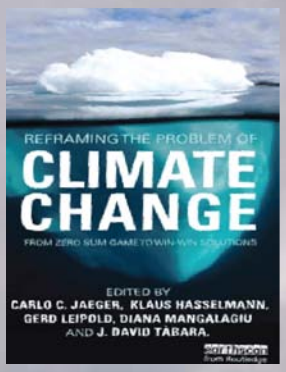
*The GCI considered that this impasse called for pragmatism and compromise. Meyer came up with his trademark paradigm of '**Contraction and Convergence'** (C&C). The idea was to fix a date for convergence, say 2030, from which time forwards every person on the planet would have an equal lifetime ration of "carbon"; thus the allocation for a nation would be this per capita allowance multiplied by the nation's population. Until that fixed date those countries (called "Annex I" countries) whose consumption of fossil fuels, and consequent C02 emissions, exceeded the notional per capita allowance would be required to contract their consumption/emissions down to the target rate. The corollary was that those nations ("non-Annex I") whose current consumption is below the target allowance would be allowed to increase their consumption as they developed their industry, but only up to the target date, and never above the fixed per capita rate that had been decided.*

Never Point at a Rainbow Julienne Ford
http://www.amazon.com/Never-Point-Rainbow-Introduction-Radical/dp/0955002826/ref=sr_1_62?s=books&ie=UTF8&qid=1367570657&sr=1-62&keywords=%22Contraction+and+Convergence%22#reader_0955002826



*The Global Commons Institute (GCI), for instance, was set up in 1990 in London, and has been encouraging awareness of its solution to climate change called Contraction and Convergence. Put forward as the suggested international framework for the arrest of greenhouse gas emissions '**Contraction & Convergence'** argues that economic growth can continue at current ('business as usual') rates only provided large efficiency gains arc made and nearly all energy comes from renewable sources. Dramatic reductions in carbon dioxide emissions would ensue, with the possibility of emissions trading between richer and poorer countries. Without this the GCI estimates that by 2060 the (annual) costs of global damage caused by climate change would equal (& then rise above) the economic gains of increasing global production.*

Air the Environmental and Public Health Anthony Kessel
http://www.amazon.com/Environment-Public-Health-Anthony-Kessel/dp/0521157730/ref=sr_1_24?s=books&ie=UTF8&qid=1367479678&sr=1-24&keywords=%22Contraction+and+Convergence%22#reader_0521157730



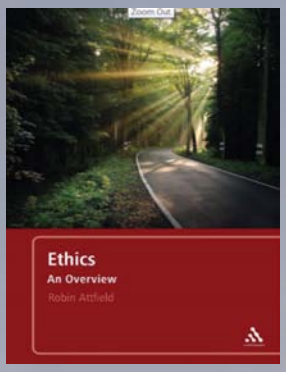
The central challenge of international climate negotialions is to agree upon the rate or contraction and convergence of the per capita emissions of all countries - an approach that was first discussed in the 1990s and has meanwhile become a basic pillar of UNFCCC. Typical transformation paths computed under the budget constraint implied by the 2°C global warming limit yield total emissions peaking around 2020, decreasing rapidly thereafter to very low val ues by lhe middle of the century. The later the emissions peak, the more rapid and challenging the required subsequent rate or decrease. To satisfy realistic contraction and convergence criteria, the emissions of the industrialized countries need to start decreasing immediately in order to accommodate longer emission growth phases for the emerging and less developed economics.

Adherents of the top-down approach argue that the global interdependencies mandate global solutions in the fo rm of binding international climate agreements. The most straightforward way to realize equitable contraction and convergence trajectories, for example, would be to apply a 'stick' policy in the rorm of a global cap--and·trade system generaliZing various regional or nationaJ cap-and·trade systems, such as the European Emission Trading System (E'rS). or si milar schemes in the US.

In the approach proposed by Wicke and Durr-Pucher (2006), for example, each country would be assigned a total number of emission permits proportional to its population, in accordance with the principle of equal per capita emission rights. Countries with low per capita emissions would then be able to sell their initially surplus emission rights to countries with higher per capita emissions, thereby achieving two important objectives: (i) global investments would be attracted into the most effective channels for reducing emissions; (ii) capital and technology would be tran srerred fi·om the industriaJ countries to the emerging and less developed countries.

Thus the resultant contraction and convergence trajectories would be economically optimal, generate transfers from industrialized countries to emerging and less developed countries, and be consistent with the principal of equal per capita emission rights. Each country would fUl-1hermore be able to implement its own individual poliCies for reducing emissions, for example, by auctioning its national contingent of emission permits and using the income for subsidies for renewable energy, or by introducing additional emission regulations. The basic principle of equal per capita emission rights would need, of course, to be adjusted to allow for different regional climates, different access to naturaJ resources, etc. and would also need to be augmented by further global agreements on non-C02 greenhouse gases, on deforestation, etc.

Reframing the Problem of Climate Change C. Jaeger, G Leipold, E Mangalagiu, K Hasselmann, J. D. Tàbara
http://books.google.co.uk/books?id=LRCDZwEACAAJ&dq=%22reframing+the+problem+of+climate+change%22&hl=en&sa=X&ei=fpiBUd4J7bbRBbnPgPgO&ved=0CDsQ6AEwAg



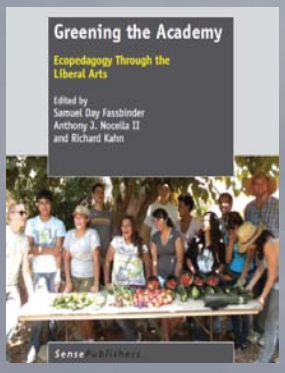
To prevent things becoming worse still, it is vital that greenhouse gas emissions, including crucially carbon emissions, be curtailed. (Even climate change sceptics who admit that there is some reason to believe that global warming is due in part to humanity should endorse this view, in accordance with the Precautionary Principle: see the section on Practice Consequentialism and Virtue-Consequentialism.) This will involve early and consistent action at individual, local, national and international levels. Reaching a global agreement on emissions mitigation has become indispensable and urgent.

*Here is one possible basis for such an agreement. The annual total of permissible emissions is calculated, and emissions entitlements are then shared equally among everyone alive (at a date to be agreed). Entitlements are then allocated to countries in proportion to their population. The total is progressively reduced to ensure that average temperatures rise no more than the agreed target. Countries not using their full entitlement are then allowed to sell it to those requiring an additional entitlement. This system, which is known for obvious reasons as '**Contraction and Convergence**', would redistribute resources, and trading could be limited so that no country can sell emissions required to satisfy the basic needs of its inhabitants.*

As Peter Singer has argued, this system can be supported by consequentialists, because of its considerable benefits to humanity and other sentient creatures.) Biocentrists can readily endorse this verdict. However, it is more important that there should be a global agreement than that it should adopt this particular shape.

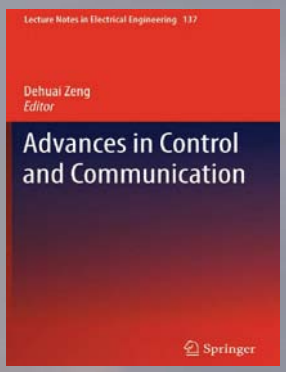
It is also crucial that whatever agreement is reached it is then implemented in each country. We all need to reflect on the contribution of our consumption and our travel to carbon emissions, and as individuals and households to modify our lifestyles accordingly. Such decisions also affect the cultural climate, and make it more feasible for governments to play their part. This is, perhaps, a fitting note on which to conclude our study of environmental ethics.

Ethics and Overview Robin Attfield
http://www.amazon.com/dp/1441182055/ref=rdr_ext_tmb#reader_1441182055



*Green Economics is intrinsically supportive of the '**Contraction and Convergence**' based on the principle proposed by Aubrey Meyer of the Global Commons Institute initially for reducing global carbon emissions by a consensus of contracting larger emitters and expanding emitters who are not using enough. This elegant solution is based on social and environmental justice and so is attractive to green economists. It has been adopted as a principle for carbon by the UNFCCC. As economists, green economists also regard it as a key idea to implement a green economy. In practice less developed countries can still grow to meet in the middle range of basic living standards but those over consuming countries need to contract to meet in the middle to ensure that there is enough to go round.*

Greening the Academy; Ecopedagogy Through the Liberal Arts
Samuel Day Fassbinder, Anthony J Noella and Richard Kahn
http://www.amazon.com/dp/9462090998/ref=rdr_ext_tmb#reader_9462090998



Carbon emissions trading is the most important issue in the initial allocation of emission rights, different distribution methods will generate different environmental and economic effects, thus affect the competitiveness of enterprises, cause a fair question.

*Current international allocation of carbon emission rights have: equal per capita allocation method and the '**Contraction and Convergence**' approach, allocation based on historical emissions, or based on the latest data distribution and sale distribution and mixing distribution.*

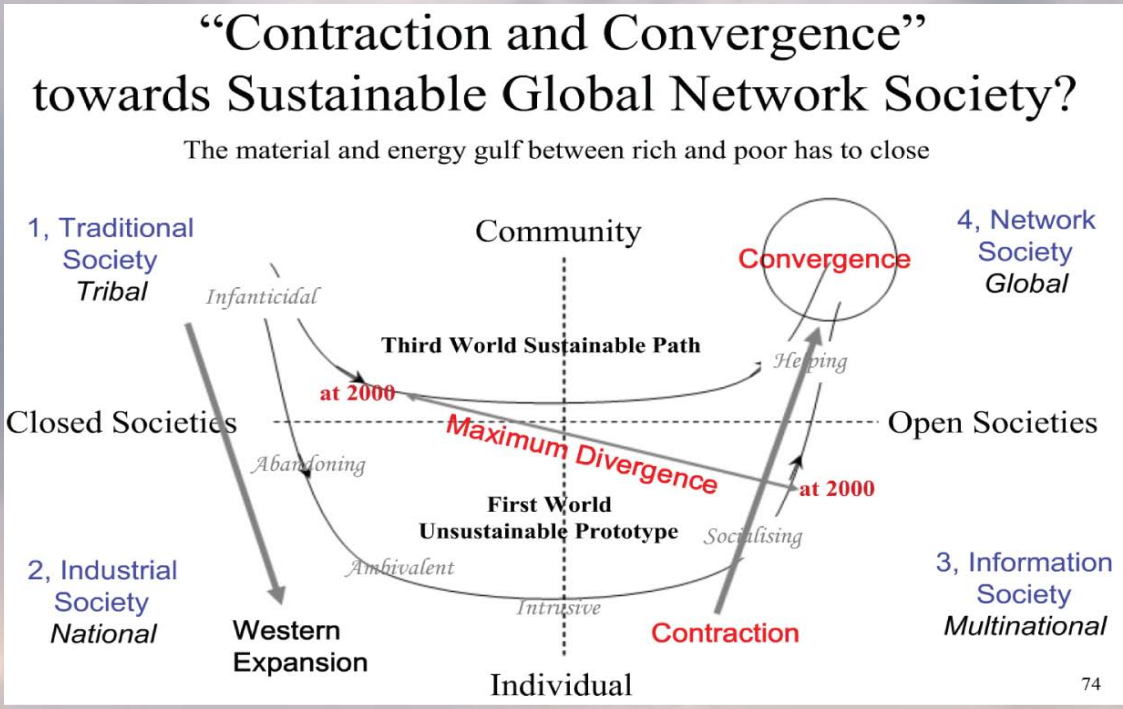
Advances in Control and Communication - Dehuai Zeng

http://books.google.co.uk/books?id=4VmxgM1FKpEC&pg=PA251&dq=%22Contraction+and+Convergence%22+Financial&hl=en&sa=X&ei=vKmAUYSsApOR0QXe8YH4AQ&ved=0CDYQ6AEwATgU#v=onepage&q=%22Contraction%20and%20Convergence%22%20Financial&f=false

*Most estimates of the size of the reduction needed in human ecological impact focus on greenhouse-gas emissions, because the numbers necessary for making such calculations are readily available. One-third of Earth's human population creates 90 percent of greenhouse-gas emissions. International climate negotiations have repeatedly broken down over the question of how to share the burden of emissions reductions among rich and poor countries. In the 1990s, the Global Commons Institute (GCI) introduced the '**Contraction and Convergence'** model, under which global emissions would contract dramatically while per-capita emissions of rich and poor countries would converge at the global average. In practice, this would mean deep reductions in the global North and modest increases in much of the South.*

GCI's current figures project that, in order to achieve the required degree of contraction and convergence, the North's emissions should be 80 percent below today's level by sometime between 2020 and 2050 [7]. These and other estimates seem to converge on a 60 to 80 percent reduction for the highest -consuming countries. They imply not only reductions of that size in fossil-fuel consumption but similar reductions in the stresses we are placing on all other resources and the ecosystems that provide them.

Any Way You Slice It
Stan Cox
http://www.amazon.com/Any-Way-You-Slice-Rationing/dp/1595588094/ref=sr_1_1?ie=UTF8&qid=1367430081&sr=8-1&keywords=%22Any+Way+You+Slice+It%3A+The+Past%2C+Present%2C+and+Future+of+Rationing.%22#reader_1595588094

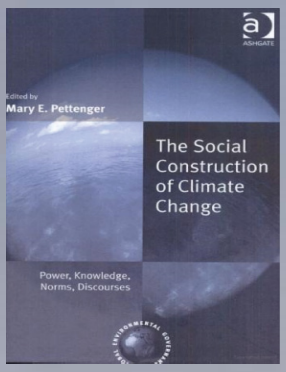


From Atoms To Bits, Collaboration & Global Sustainability

Slide Show from David Leevers, BA, MIET, www.vers.co.uk
VERS Associates, Virtual Environments for Real Societies
CDS, Clinic for Dissociative Studies, London

Based on the presentation "From a Psycho History to a Sane Future", International Psychohistorical Association, 27th Annual Convention, New York, June 2004

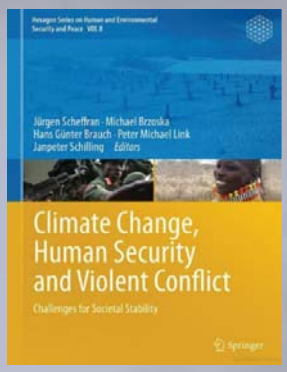
This web adaptation of the presentation has been continually amended in the light of comments. Slides now discuss how culture breakdown can lead to dissociation, how collaboration breakdown can lead to schizophrenia and how learning from these failures might help us work towards a Sustainable Global Network Society.
http://www.slideserve.com/adamdaniel/from-atoms-to-bits-culture-collaboration-and-global-sustainability



*Another echo is to be found in 1995 in the controversy over economic dimensions in chapter 6 in the IPCC's second assessment report (SAR). The chapter was originally drafted as a comprehensive overview of climate change damages. Pearce's model included differential values for lives in North and South to calculate global cost/benefit analysis of emissions abatement. reports that early drafts of the chapter led to contentious debates at official presentations as well as on the ecological economics mailing list which included a formal protest endorsed by hundreds of scientists and researchers. The chapter was rejected at a meeting in Geneva and the key elements of the rewritten chapter were not included in the summary for policymakers (a key part of IPCC's assessment reports). Well-articulated objections to the chapter were raised by Masood (1995) and by Meyer (1995) and his Global Commons Institute, who out of this developed the notion of '**Contraction and Convergence' (C&C)**. The C&C framework models how the trajectory of emissions would travel if we start from a status quo emissions distribution and move towards per capita equality (convergence) while reducing emissions to an overall level which is a politically set goal to achieve climate stability (contraction). It is interesting to note the range of actors who have expressed support for C&C They are able to do this precisely because the framework articulates concerns of the South for equal per capita emissions with US/Western concerns for "meaningful commitments" from developing countries. In some sense, the "equal per capita" position poses a challenge to territoriality in that it relates individuals (as humans) to the atmosphere as a global common. It establishes individuals' equal access and responsibilities according to universal principles. However, those individual CO2 contributions are actually calculated on the basis of national emissions and then divided by the number of people living in the state. Thus, in fact it is a territorially based "per capita position" that takes the emissions of the national community and divides by the population. Hence, the low Indian per capita level depends on the large amount of poor Indians with very low emissions, while the Indian middle class consumes carbon at or close to an OECD average. Thus the debates around justice, while being instinctively cosmopolitan and working in ethical terms alongside the scientific constructions of climate change as "global," in fact get drawn back to a statist account of rights. In the climate negotiations, the principle of "sovereign equality" is underpinning the agreed protocols for emission reductions. This is clearly reflected in the Kyoto Protocol where all Annex I panics agreed to reduce emissions by al least 5% from 1990 levels by 2008- 2012. 1990 was decided upon as the "base year" and a "cap" was put on past emissions. Thus in the dominant version, it is Americans that have in effect an a priori "right" to emit CO2 at the rate they do, and any collectively agreed proposals to limit emissions need to start from that rate of emission as the point of departure. In the contex.t of the climate negotiations, allocations based on past emissions is tellingly named "grandfathering." It is the grandfathers of a political community, who through past actions, have acquired a "status quo right" for the now living to continue to use the atmosphere in the way they want. This reflects the (now palpably patriarchal) master discourse of territorial sovereignty in two ways. First, the members of the political community in question are territorially defined and, second, they are justified in the claim that the community should accept any intervention in the way they choose to live their lives. The consequence of "equal per capita emissions," when the idea is put into concrete proposals, at least proposed by state negotiators, is that the scheme becomes mediated by the Southern state's right to negotiate on behalf of "its" people through the principle of non-intervention which means that the Indian state can conceivably argue for equal per capita emissions in international politics while rejecting a right of the international community to question the distribution of emissions within India.*

The Social Construction of Climate Change:
Power Knowledge Norms Discourses ed Mary E. Pettenger

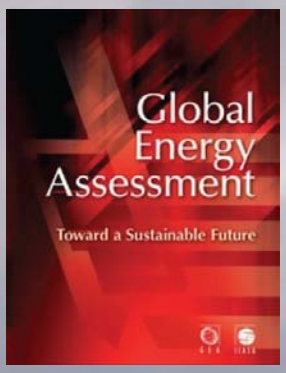
http://books.google.co.uk/books?id=qNYt4wIZ7FIC&pg=PA158&dq=%22Contraction+and+Convergence%22+IPCC&hl=en&sa=X&ei=G_pCUePZLYLw0gWV-4Ew&ved=0CC8Q6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22%20IPCC&f=false



Fair and efficient burden-sharing in a global framework of climate justice would balance responsibilities and impacts among countries, satisfying both the 'polluter pays' principle and the 'ability-to-pay' principle. With the formula of 'common but different responsibilities', the UNFCCC has assigned different roles to industrialized and developing countries in climate policy. The challenge is to agree on collective emission targets that avoid dangerous climate change and will not be exceeded by humankind.

*Several proposals have been made to balance emissions, including the Triptych approach to share emission allowances among a group of countries, the '**Contraction and Convergence'** concept with a joint target of per capita emissions, and the Common but Differentiated Convergence proposal, in which countries are free to select the emission path appropriate to their development.*

Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability edited by Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch



Transfers under Contraction & Convergence Assumptions IIASA

*This section explores the implications of an illustrative burden-sharing scheme for the allocation of future emissions rights and applies it to the GEA pathways. This burden-sharing scheme has been introduced in the literature as '**Contraction and Convergence'** by the Global Commons Institute and was subsequently used in many scientific analysis (see, e.g., den Elzen and van Vuuren, 2007. In essence, under such a scheme, all regions need to converge to a common per capita emissions entitlement by a specified date (2050). For regions with per capita emissions above the world average, this implies reductions (hence the term "contraction") until the convergence criterion is fulfilled, but starting from very different initial conditions. For regions with per capita emissions below the world average, emissions can rise initially until they reach the world average. Thereafter, these regions also need to contract to the specified convergence level. The resulting emissions projections from the allocation scheme differ from the original GEA pathways, which assume that reductions take place where they are most cost-effective.*

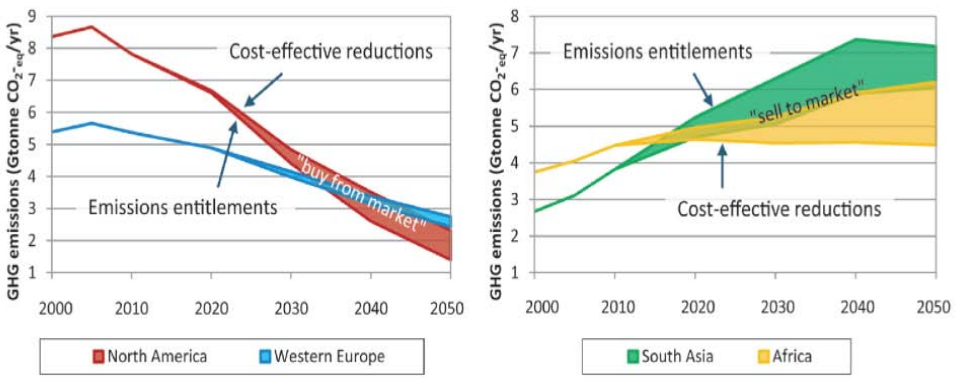


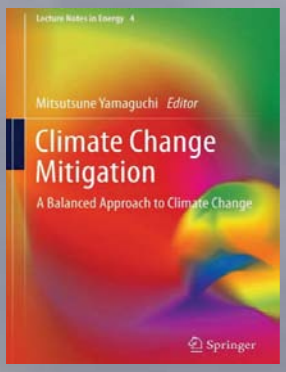
Figure 17.43 | Projected GHG emissions in the case of contraction-and-convergence allocation of emissions entitlements compared with cost-effective emissions reductions in the GEA-Mix illustrative pathway. Shaded areas in the left panel show the resulting demand for permit trade in North America and Western Europe. Shaded areas in the right panel show the resulting emissions surplus for permit sales in South Asia and sub-Saharan Africa.

Global Energy Assessment - Towards a Sustainable Future Nebojsa Nakicenovic et al IIASA

*The reference to 'required fairness' reflects the UNFCCC global solidarity principles. France proposed per capita norms as a means to attain equity, a preference also shared by India and China. The French proposal had similarities with the 'contraction and convergence' model promoted by Meyer (2000). Viewing the atmosphere as a 'global commons', the Meyer model sought to distribute national obligations on the basis of international and intergenerational equity. By 'convergence' is understood the long-term transition to common emission levels through substantial cuts on the pan of rich nations, whilst allowing the poorest nations to increase their emissions. The '**Contraction and Convergence'** school of thought has found considerable favour among international non-governmental organisations (NGOs), who called for greater global solidarity.*

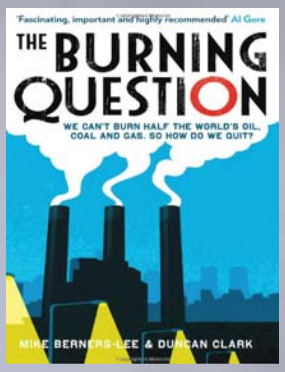
*At the same time, a common per capita target for industrialised countries would be advantageous for France (Godard, 1997= 39). Prior to Kyoto, a narrow framing of the national interest was evident in the French negotiating position which offered merely to contain emissions at below two metric tonnes of carbon per capita per year by woo – a level some 10 percent higher than in 1990 (IEA . 1996: 74). However, emissions per capita did not become an international norm because the implications were too demanding for industrialised nations. As second best, France argued during the negotiation of the I998 burden-sharing agreement (which programmed an 8 per cent reduction in EU-t 5 for the 2008- 12 commitment period defined by the Kyoto Protocol) that, given past performance, stabilising GHG emissions at the '990 level of 549.34 M [CO, was enough. The stabilisation target was in contrast to the ambitious cuts accepted by Germany (2 1 %) and the UK (12.5 %), France had raised expectations by choosing to highlight equity considerations, but finally refused either per capita or aggregate emissions reduction. The difference with Meyer's '**Contraction and Convergence'** model lay in promoting convergence by others, without volunteering further contraction by France.*

L'intégration européenne par l'environnement: Le cas français
Nathalie Berny
http://books.google.co.uk/books?id=iPuKVlehDKQC&pg=PA164&dq=%22Contraction+and+Convergence%22+IEA&hl=en&sa=X&ei=ms1vUdLlCKmK0AXL1IBg&ved=0CFQQ6AEwBjgK#v=onepage&q=%22Contraction%20and%20Convergence%22%20&f=false



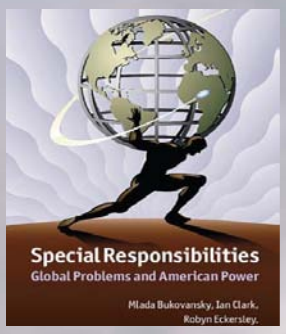
An international agreement on emission reduction targets must be a pledge-and-review type agreement, even if such targets become binding later. No rigid methodologies for evaluating the pledged reduction targets for each country are required, but it is necessary to base the comparative emission reduction levels among countries on some equity criteria for the review process. The estimates of the allowable emissions for the world's countries in this paper were determined using relatively logical assumptions on 'Contraction and Convergence' of per capita emissions avoiding criteria entailing significant subjective assumptions, using a state-of-the-art model having high technological and regional resolution for clear cost equity-based criteria. Uncertainties still exist; however, the estimates are very important in discussions on the sharing of emission reductions among countries at international negotiation.

Climate Change Mitigation - A Balanced Approach
Mitsusune Yamaguchi
http://books.google.co.uk/books?id=Wn2HFii0ZCwC&pg=PA59&dq=%22Contraction+and+Convergence%22+IEA&hl=en&sa=X&ei=Cr9vUbChJOqr0QW8-YGQAw&ved=0CGQQ6AEwCQ#v=onepage&q=%22Contraction%20and%20Convergence%22%20IEA&f=false



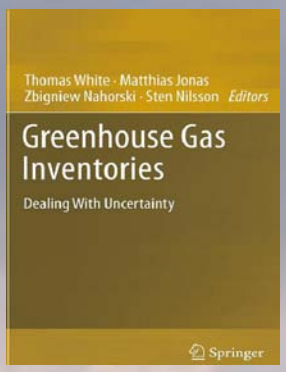
*A better candidate might therefore be a global cap-and-trade scheme in which tradable permits for the production of fossil fuels are distributed to national governments according to a simple but negotiable formula such as **Contraction and Convergence'**. In this model, the number of carbon permits would be fixed in advance for each year or compliance period, limiting total fossil fuel use in line with an agreed global carbon budget. Additional permits could be made available to any company demonstrably and safely putting carbon dioxide back into the ground, kick-starting a major new effort on carbon capture technology.*

The Burning Question: We Can't Burn Half the Half the World's Oil, Coal and Gas, so how do we quit?
Mike Berners-Lee, Duncan Clark
http://www.amazon.com/dp/1781250456/ref=rdr_ext_tmb#reader_1781250456



*The significant differences in responsibility, capability and vulnerability on either side of the Annex 1/non-Annex I divide continue to serve as a bone of contention. Indeed, if we return to each of the key words in Article 3(1) of the UNFCCC - 'equity', ' responsibilities' and 'capabilities' - it is clear that there is considerable scope for different interpretations which have been exploited by both developed and developing countries. For example, equity has been interpreted to include a right of developing countries to develop, an equal right of individuals to a sustainable livelihood or a right to a certain sustainable portion of atmospheric space. This is reflected in the popular model of **'Contraction and Convergence'** - See A. Meyer, **Contraction and Convergence'** The global solution to climate change (Dartington: Green Books, 2000).*

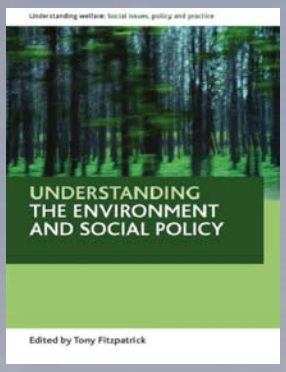
Special Responsibilities: Global Problems and American Power
Mlada Bukovansky, Ian Clark, Robyn Eckersley, Richard Price, Christian Reus-Smit, Nicholas J. Wheeler
http://books.google.co.uk/books?id=LfhcAaJ-q7gC&pg=PA135&dq=%22Contraction+and+Convergence%22&hl=en&sa=X&ei=B6VsUYf7A-i70QXCm4HQAQ&ved=0CFsQ6AEwBw#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false



*This situation would be different if the non-uniformity of the emission limitation or reduction commitments were the outcome of a rigorously based process resulting in a straightforward rule that applies equally to all countries, as would be the case, for instance, under the widely discussed '**Contraction and Convergence'** (C&C) approach. Under such conditions, it would be the undershooting that matters, not the modified emission limitation or reduction target.*

Greenhouse gas inventories ed Matthias. Jonas, Thomas M. White
http://books.google.co.uk/books?id=jfNFYeWVxhQC&pg=PA175&dq="Contraction+and+Convergence"+IIASA&hl=en&sa=X&ei=XdZrUY7IMu3M0AX58oGICw&sqi=2&ved=0CD4Q6AEwAg#v=onepage&q=C&f=false

*"I support the '**Contraction and Convergence'** submission from GCI to the UNFCCC to promote climate justice in a practical, equitable and precautionary way. Please add my name to the list of support for the GCI proposal as Jonathan W. Maxson, MSW, USA." Words are inadequate to express how important your work on Contraction and Convergence (C&C) has been to me over the last two years. Music, mathematics and the sacred geometry of nature must all be woven into the acknowledgement, and that is why I find myself regularly cycling back to a public promotion of this brilliant multimedia video as the highest praise I can offer . . . .*
http://www.youtube.com/watch?v=IfFa1Tq8HhY&feature=youtu.be



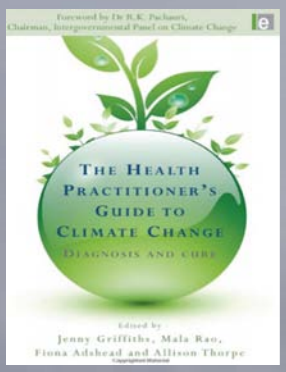
By contraction we mean the shrinking of carbon emissions over time; by convergence we mean that the amount of carbon emitted by developed nations falls as, for a time, that of developing nations continues to rise so that crucial social issues, for example, poverty, can be addressed.

*One popular idea concerns '**Contraction and Convergence'.***
The world can only afford to emit x tonnes of carbon in anyone year. Therefore, we should divide x by the number of people on the planet during that year and whatever figure that calculation generates represents a 'carbon allowance' for each individual.

Obviously, the value of x depends on the sustainability targets and timelines we select, with fewer emissions being permitted ill later decades. Also, countries with lower per capita emissions than x arc allowed to emit morecarbon until x is reached, in contrast to developed economies that have to initiate cuts to descend towards x. Countries therefore converge on one another as, over time, overall global emissions contract.

To simultaneously address the imperatives of poverty and environmental sustainability a dual-track strategy is recommended. Until they reach a certain basic standard of wealth, the poorer countries of the South are permitted to opt out from international agreements that mandate carbon reduction. Anthony Giddens describes this contraction and convergence principle as 'a necessary point of connection between the two types of development.

Understanding the Environment and Social Policy
edited by Tony Fitzpatrick
http://books.google.co.uk/books?id=c_omk7wdL_kC&pg=PA53&dq=%22Contraction+and+Convergence%22+Giddens&hl=en&sa=X&ei=679rUfKFOOqY1AXkvYCQAQ&ved=0CDMQ6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false



*'**Contraction and Convergence'**:*
A Policy Framework for a Stable Climate

*'**Contraction and Convergence'** (C&C) is a simple, science-based starting point for an international agreement on reducing greenhouse gas emissions, based on the principles of justice and equity (Global Commons Institute, 2008). The concentration of greenhouse gases in the atmosphere is increasing. The amount of carbon dioxide, the chief greenhouse gas, is now higher than at any time in the past 650,000 years. To ensure our future survival its concentration must be kept with in a safe upper limit.*

Carbon dioxide remains in the atmosphere for about a century and so in order to keep the atmospheric concentration below a safe limit, the amount of carbon dioxide that is emitted must fall. This is the contraction part. Establishing a safe upper limit is a technical mailer for climate scientists, but is likely to be at least an 80 per cent reduction by 2050, maybe more and maybe sooner. Agreement must be reached on where the upper limit should be set and a date by which this concentration should be achieved, and health practitioners need to advocate for this - see Chapter 5 for ideas on how. The question remaining is who should be allowed to emit greenhouse gases?

The atmosphere is a global good that all the citizens of the Earth must take responsibility for and must share. It follows that when it comes to parcelling out entitlement to emit greenhouse gases, everyone should have an equal share. Currently, the emission of greenhouse gases is far from fair. Average per capita carbon emissions of people in the United States are about 20 times higher than that of people in India.

*'**Contraction and Convergence'** sets out a timetable for when per capita emissions will converge to equal per capita shares. The policy acknowledges that everyone has an equal right to the atmosphere, but recognizes that the wealthy world will need time to make the transition to fair shares.*

In the convergence phase, wealthy countries will have to make cuts even as emissions from poorer countries increase; but once per capita emissions converge, rich and poor alike will have to reduce emissions together. The policy also allows for emissions entitlements to be traded, which will again ease the transition to equal shares whilst ensuring that the safe upper limit is not exceeded.

Reducing Inequalities

Each year, worldwide, about 10 million children die before their fifth birthday (UN, 2009). They die because they are poor. Poverty condemns them to hunger, dirty water, poor sanitation, inadequate health care, and frequently their parents have had little or no opportunity of education. Contraction and Convergence is a policy response to climate change that simultaneously ensures ecological sustainability and justice for the poor. The carbon profligate will be required to pay the carbon thrifty for their unused rights to the atmosphere, thus assuring that the limits of environmental tolerance are not exceeded. In general the rich lead high-carbon lives and the poor lead low-carbon lives, so the policy of C&C should lead to a massive global redistribution of wealth. The lives of African children should not depend on the charitable whims of the wealthy world. C&C ensures that African children's rights to the atmosphere are bought from them rather than stolen.

C&C has the potential to redistribute wealth – and therefore reduce inequalities in health – between countries and within countries. Globally and nationally the carbon greedy would lose out and the carbon frugal would gain.

We believe any framework must have the following three ingredients: -

1. First and foremost, a scientifically assessed and globally binding commitment to cap and reduce carbon emissions to avoid atmospheric concentrations greater than 350-450 parts per million, to give ourselves a high probability of limiting average global temperature rises to 2_2.4°C.

2.A mechanism for ensuring that resources are transferred to those countries where both living standards and fossil fuel use have been low. These resources include support to enable population stabilization, which is essential to the future health of the planet.

3.An approach to development that, by giving people the capability of making low-carbon choices, minimizes greenhouse gas emissions.

*The 'fair shares' '**Contraction and Convergence'** framework articulated by the Global Commons Institute, is founded on these three principles and is the most feasible present option. If other frameworks emerge that have these three ingredients, we must support them.*

These policies require an international framework based on equity and justice, such as Contraction and Convergence. Policies to reduce greenhouse gas emissions could bring important reductions in health inequalities, heart disease, cancer, obesity, diabetes, road deaths and injuries and urban air pollution. Reducing animal product consumption in high-income countries is essential to allow increased consumption in poor countries without devastating climate impacts and will bring many health benefits. A rapid transition to a low-energy low-carbon transportation system involving substantially increased levels of active transport, namely walking and cycling, is essential and would also bring with it substantial health benefits: reducing obesity, improving air quality, reducing road deaths and injury and improving mental well-being. Finally, investment in and promotion of family planning could be one of the most cost-effective greenhouse gas reduction measures available, because much of the growth in emissions in coming years will be due to rising population numbers. Some policies to mitigate and adapt to climate change, such as more trees and green spaces, will also improve mental well-being.

Two hundred years ago the streets of London were awash with sewage. In 1858 the stench from the river Thames was so strong that MPs declared the House of Commons 'unusable'. Infectious disease was a deadly killer but it was the 'great stink' of 1858 that secured the funds needed to sort out London's sewage (Roberts, 2008). Policy on sewage did more to improve the health of Londoners than any health policy that century. Could responding to climate be the next great health advance?

We argue that putting in place public policies that prevent additional climate change presents unrivalled opportunities for improving public health. As we saw in Chapter 2, climate change and its effect on the ecosystem will have serious implications for health, so preventing runaway climate change is essential for a healthy and sustainable future. However, the economic and social policies that will need to be implemented in order to reduce greenhouse gas emissions will also bring substantial health improvements. Specifically, they could bring important reductions in inequalities in health, heart disease, cancer, obesity, diabetes, road deaths and injuries and urban air pollution.

These health benefits arise for three reasons:

*1. Because '**Contraction and Convergence'** which is the fairest, most clearly articulated and most widely supported global framework for reducing greenhouse gas emissions, has justice and equity at its core and injustice and inequality are major determinants of human suffering and sickness (Global Commons Institute, 2008).*

2.Because climate change policies will impact in a health-promoting way on two of the most important determinants of health: human nutrition and human movement.

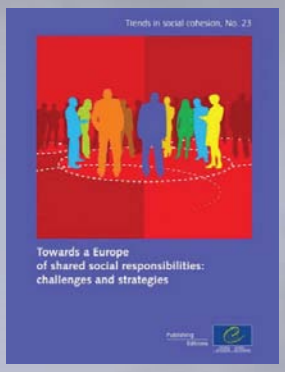
3.Because climate change policy has to include population policy and the promotion of family planning has huge potential to improve global health (Cleland et al 2006).

The Health Practitioner's Guide to Climate Change

Jenny Griffiths (Editor), Mala Rao (Editor), Fiona Adshead (Editor), Allison Thorpe (Editor)
http://www.amazon.com/Health-Practitioners-Guide-Climate-Change/dp/1844077292/ref=sr_1_1?ie=UTF8&s=books&qid=1287949198&sr=8-1#_

*With regard to climate in particular there has for a long time been a strong debate as to how carbon emissions and energy use can become more equitable. The concept of per capita allocation of carbon allowances, together with the concept of '**Contraction and Convergence'** of emissions from different countries according to their population has existed as a model for many years.*

Increasingly it is becoming an argument not about whether it is the right approach, but about whether it will ever be practically feasible and whether richer countries will ever agree to the reduction in energy intensity of their economies that will be required. The Secretary of State has already acknowledged in his White Paper speeches the need to find a way of dividing CO2 emissions between countries so that safe levels are not exceeded. This is not an issue that will disappear and DFID needs to address it head-on.



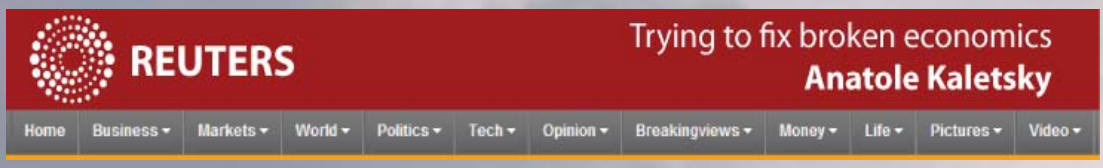
*To reflect this contextual approach of systemic world-views, principles from sustainable development law provide useful support for decisions on the distribution of costs and benefits. The most important principle for sustainability is safeguarding a secure operating space for humanity. Respecting the laws of nature therefore is a common good. Future-oriented approaches need to search for scientifically informed caps on maximum possible consumption levels. Derived from those, the equity principle of '**Contraction and Convergence'** is fundamental for long-term well-being and justice towards future generations, as I see it.*

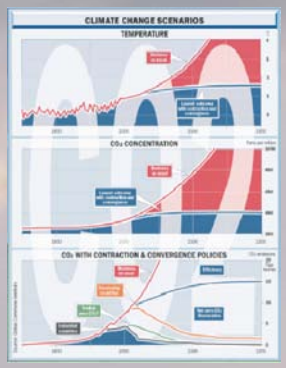
Consumption as such has to contract to the point that it is sustainable over time – and is adapted to changes in population. In order to secure the well-being of all individuals, similar per capita options for everyone in every generation should be provided. Thus we have a clear distributional goal in prioritising the achievement of sufficiency for all humans over the maximum possible benefits for any identifiable individual.

Turning to action, good guidance is provided by principles that adequately reflect the current degree of inequity and the urgency of swift action: the polluter pays and common but differentiated responsibility. Contributions are allocated according to each society member's capabilities to take responsibility. Adopting this formula will quite clearly indicate which of the people living today are using more than their fair entitlement to the global commons and should therefore share.

In most cases, their share of available wealth also means they are capable of contributing more to the change towards sustainable well-being for all.

Towards a Europe of Shared Social Responsibilities, Challenges and Strategies - Council of Europe Publishing
http://books.google.co.uk/books?id=fvJ9OF4TZK8C&pg=PA148&dq=%22Contraction+and+Convergence%22+Urgency&hl=en&sa=X&ei=rkpkUcraG8qG0AWz_4CYBA&ved=0CGoQ6AEwCQ#v=snippet&q=Contraction%20and%20Convergence&f=false





Here is a list of economic questions that have something in common. In a recession, should governments reduce budget deficits or increase them? Do 0 percent interest rates stimulate economic recovery or suppress it? Should welfare benefits be maintained or cut in response to high unemployment? Should depositors in failed banks be protected or suffer big losses? Does income inequality damage or encourage economic growth? Will market forces create environmental disasters or avert them? Is government support necessary for technological progress or stifling to innovation?

Trying to Fix Broken Economics
Anatole Kaletsky in Reuters the Econoclast

*Consider the ambitious target for reducing carbon emissions suggested two years ago by Britain's Royal Commission on Environmental Pollution. Its proposal was to reduce emissions by 60 per cent by 2050, possibly through an international agreement called '**Contraction and Convergence'**, which has been much discussed.*

This would give every country a quota for carbon emissions, based on its population and would allow countries to trade these emission rights. This would gradually reduce worldwide carbon emission and encourage the development of more efficient technologies.

In the meantime, it would ensure a flow of funds from rich countries to poor ones, which, because of their lower levels of car ownership and industrialisation, would have surplus emission rights.

Capitalism is the best way to save the planet
Anatole Kaletsky in the Times http://www.gci.org.uk/Documents/Kaletsky.pdf

'Contraction and Convergence'

*This discovery of the freedom of simplicity is going to be a key component in any equitable and just attempt to address the problems of climate change and unsustainability. At global level a useful model of economic transition to sustainability is called '**Contraction and Convergence'**. It is a set of projections that show sustainable levels of production and emissions are compatible with the raising of living standards for billions of people in the global South (if that is what they want). But it depends on a clear and planned contraction of production, consumption and emissions in the rich countries of the world. Rising production would meet the contracting production of the rich nations, to converge at a sustainable level achievable by re-localised and diverse economies. At present it is perhaps the only socially just strategy on offer – but it is almost impossible to get it on the table in discussions between rich nations. The assumption seems to be that any discussion of lowering economic prosperity is political suicide.*

A spiritual approach has a lot to offer in supporting a social/political will which recognises that true well-being is compatible with levels of consumption much lower than those currently pursued by rich nations (the minority world). It is important we work to achieve wider recognition of this perspective. The options can be starkly presented: rejoiceful simplicity in a just world, or lifeboat authoritarianism and increased militarised protection of shrinking islands of prosperity.

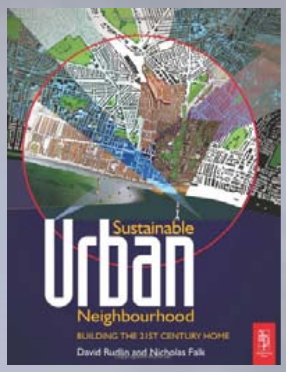
Beyond this, Buddhism offers a deeper critique of consumerism. Any form of economic exchange that reduces life to a mere commodity value is fundamentally unethical. While ethical consumerism might put pressure on producers to amend their practices so as to cater for new markets, from another perspective 'ethical consumerism' becomes an oxymoron: the only ethical consumerism is actually the end of consumerism.

At the root of Buddhist/spiritual political economy is dana – this is generosity and the practice of cultivating generosity. At the core of western political economy lies the idea of the individual and their property rights. Given that many spiritual approaches reject the idea of a reified self, this poses a major challenge to the very idea of private property. The notion of private property is an extension of the conceit of self. It leads to the belief that increasing private acquisition offers a basis for security. But the drive for greater personal acquisition is tragically tied to erosion of the basic economies on which life depends – the ecological and sustenance economies. At the macro-economic level, the institution of private property leads to increased centralisation of economic power and diminishing of community – and damages the prospects for meaningful democracy.

Dana could be the fundamental principle around which economics are organised. As a basic virtue, generosity expresses a fundamental insight: namely that we are not separate entities but inhabit an intimate web of relationships with others and the world: it is orientation towards the other rather than fixation on the self. The extent to which we can let go of ego-centeredness is equal with our ability to open up to reality. Dana is a concrete expression of the dynamic of selftranscendence and it is central to the well-being of a community.

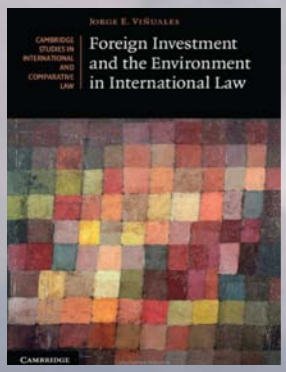
Do Dakinis Wage Class War? Ecodharma

http://www.ecodharma.com/influences-articles/ecodharma-articles/2009/03/04/do-dakinis-wage-class-war-buddhist-economics-and-earth-democracy



*Indeed some commentators suggest that we must go much further. Mayer Hillman of the Policy Studies Institute working with Aubrey Meyer of the Global Commons Institute has promoted the concept of '**Contraction and Convergence'**. This is based on equalising per capita C02 emissions across the globe, something that would involve a 10% annual reduction in UK emissions every year for 25 years. Hillman suggests that carbon rationing be introduced to enforce this with everyone being given a personal carbon budget covering everything from heating and travel to the carbon emissions of food production. The implications of this level of C02 reduction are immense; it would mean the end of air travel and supermarkets. Cars could only be used as a luxury or in an emergency. Indeed any form of mechanised transport would soon leave a hole in your carbon budget so that walking and cycling would become the most common form, of transport. It is difficult to see how cities in their current form could be sustained under such levels of carbon austerity.*

Sustainable Urban Neighbourhood David Rudin Nicholas Falk
http://www.amazon.com/Sustainable-Urban-Neighbourhood-David-Rudlin/dp/0750656336/ref=sr_1_1?ie=UTF8&qid=1365473986&sr=8-1&keywords=Sustainable+Urban+Neighbourhood



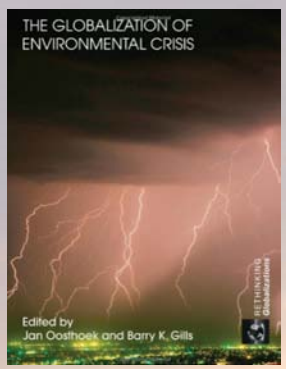
Reference to human rights approaches in the context of climate policies has been made from two main perspectives. First. it has been argued that the moral concept of human rights (by contrast with specific human rights provisions) must be taken into account for distributional purposes, i.e .. to justify certain distributions of the rights to emissions 'rights'?

*It is from this perspective that a distinction between 'luxury emissions' and 'subsistence emissions' (based on human rights) has been advocated? It is also from this perspective that the allocation of a certain share of emissions to developing countries in pursuance of the 'right to development' has been argued for or that different paths to convergence in the well-known '**Contraction and Convergence'** [C&C] model could be justified.*

Despite the political potential of these initiatives, from a legal standpoint their reliance on human rights law provisions is not entirely clear and, in all events, not sufficiently spelled out to assess how the relations between climate change policies and investment disciplines could be affected.

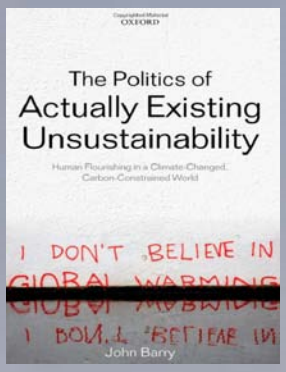
The current C&C model is based on a 450 ppm 'contraction budget' which would be reached by the progressive convergence of emissions reduction in differen t countries by 2030. The different paths towards convergence (defined by contraction rates that must account for equity considerations) would reach a goal of equal emissions per capita in the target date (2030). See (accessedon 4 January 20 12).

Foreign Investment and the Environment in International Law Jorge E Vinuales
http://www.amazon.com/Investment-Environment-International-Cambridge-Comparative/dp/1107006384/ref=sr_1_1?ie=UTF8&qid=1365471848&sr=8-1&keywords=Foreign+Investment+and+the+Environment+in+International+Law#reader_1107006384



*On the other side of the spectrum are two proposals that strongly favour developing countries: historical responsibility and per capita '**Contraction and Convergence'** from the Globla Commons Institute. India, China, and much of the developing world favour a pcr capita approach in which each person on Earth is given an equal right to the ability of the atmosphere to absorb carbon. Under the per capita proposal, nations whose per capita consumption of fossil fuels is significantly lower than the world average would be given significant room to grow and emit. Most per capita plans would allow them to trade their extra carbon emission credits for the capital they need for development. By comparison, nations with highly fossil energy-intensive economics face sharp requirements to cut their consumption of fuels.*

The Globalization of Envrionmental Crisis
Jan Oosthoek, Barry K. Gills
http://www.amazon.com/Globalization-Environmental-Crisis-Rethinking-Globalizations/dp/0415464315/ref=sr_1_2?ie



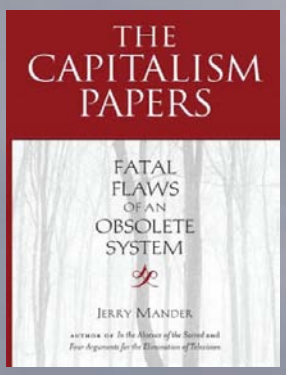
In terms of continuing the critique of economic growth, we refined our analysis somewhat in this chapter along the following lines. The first is that the critique is directed at undifferentiated, orthodox GDP measurements of growth, where growth is viewed as permanent feature of an economy or a permanent economic objective. The second is that the critique of orthodox economic growth is confined to the minority or overdeveloped societies of the world. Using the normatively and scientifically informed ***Contraction and Convergence'*** *argument, the upshot of the analysis is for the redistribution of development opportunities from the 'overdeveloped' countries to the 'global South'.*

Economic growth was also presented as an ideology which serves the interests of elite, and its ideological promotion (by neoclassical economics) is intrinsically connected to the contemporary practices of global capitalism. Thus, as it stands, the dominant model of contemporary neoclassical economics is an apologia for, and legitimation of. free market capital ism and neo-liberalism.

In general terms following one of the first modern thinkers to propose a 'post-growth' economy, John Stuart Mill (Barry, 2007a), green political economists are of the view that economic growth should be 're-distributed' from the 'over, developed' minority world to the majority world in the global South. In terms of the limits to growth, energy and ecological thresholds that cannot be breached, the development path of the 'global South' cannot be along the same model as those pursued by the already industrialized (over) developed world.

*It is for this reason that most of the debates about a post-growth economy tend to be orientated towards the developed world, largely based, in my view, on the application of the '****Contraction and Convergence'*** *approach to climate change and carbon reductions [Meyer, 200I], as a principle to guide an egalitarian and sustainable distribution of 'development space' globally.*

The Politics of Actually Existing Unsustainably
John Barry OXFORD
http://www.amazon.com/Politics-Actually-Existing-Unsustainability-Climate-Changed/dp/0199695393/ref=sr_1_1?ie=UTF8&qid=1331437301&sr=8-1



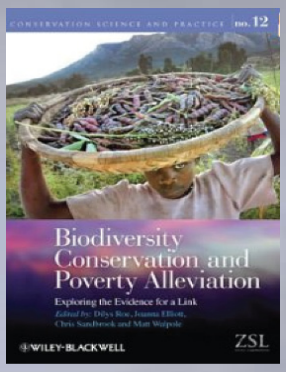
A further consideration in any steady-state system is the manner of distribution of whatever resources that remain available. As the currently over-consuming nations of the world ··power down" t hei r energy and resources use, overall global consumption will need to be reduced to a level safely below what is sustainable for the planet.

Some nations and peoples already live at very low consumption levels, sometimes well below levels that can sustain well-being. Disparities like that are typically the result of Centuries of prior exploitation or present neo-colonial activity, making self-sufficiency impossible. The deplorable resource and land grabbing that we described in chapter VI is a good current example.

*Nations that have been historically deprived argue that they cannot reduce consumption as yet. In fact, they continue to need help in increasing consumption to a level of sufficiency - hence the emergence of an important new concept, making its way through environmental and social-justice communities: '****Contraction and Convergence'****.*

The model goes like this: Work to achieve overall global economic contraction to a level safely below planetary carrying capacities. At the same time, within this lower level of overall consumption, work to establish an equitable plan for redistribution of sufficient available resources, until all remaining human societies are able to move toward convergence at an acceptable use level for everyone. That's a good one for the UN to try to work out.

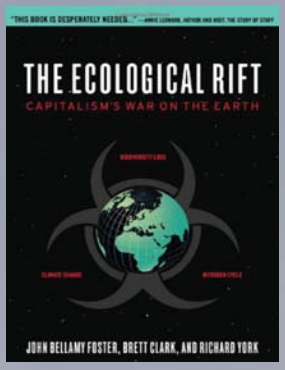
The Capitlaism Papers Jerry Mander
http://books.google.co.uk/books?id=wdCFCMbu3h4C&pg=PA219&dq=%22Contraction+and+Convergence%22+Capitalism&hl=en&sa=X&ei=FbpiUZnpJ4qX1AWG1IGABg&ved=0CGQQ6AEwCQ#v=onepage&q=gci&f=false



*How should humanity respond to the challenge of the Anthropocene, the era of humankind? The term refers to the current geological epoch of extensive human modification of ecological and geological processes, which started in about 1800, and whose transformations have accelerated since 1950 (Crutzen, 2002; Steffen et al 2007). The fundamental debate about conservation and poverty does not concern the frontier, important though that is, but the world's urban heartlands; not the beleaguered forest dweller but the home-owning, holiday-booking , SUV-driving hyper-consumer of internet advertisement and television soaps, and the vast numbers of the urban and rural poor who dream, justifiably, of achieving the same lifestyle. On the current model, the only escape from poverty leads to an environmentally destructive lifestyle. One question suggests itself: why does conservation not address the standard 20th-century model of development? The characteristic path dependence of thinking in conservation constrains innovative thinking. Most conservationists are trained to know about biology, not capitalism. Their instinct and their 'mission-driven' discipline of conservation biology both lead them to focus on immediate drivers of biodiversity loss, and so they are preoccupied with matters of greater urgency. Moreover, they operate within the capitalism system, are the beneficiaries of the conventional development model and in many cases are dependent on the taxes or donations of the wealthy for the ir income and jobs. Why question a system you do not understand, which supports the world as you know it and from which you derive all prospect of future benefit? The sustainability of the world economy is surely someone else's problem. There has been some progress in addressing that problem in recent decades, challenging the standard development model of unchecked economic growth and associated energy use, resource consumption and waste production. The issue of sustainability has considerable buy-in from governments and businesses, at least at the rhetorical level. The many achievements of 'green' production and consumption are impressive given what went before. However, they are still trivial compared to the scale of the problem. To even survive the Anthropocene, humanity needs to dramatically reduce carbon use and increase technical efficiency in all industrial processes of production and consumption, delink energy generation from carbon production and delink energy consumption from economic growth. We need to do all these things while enabling poor countries (and poor people) to produce and consume more. This demands an agenda of '**Contraction and Convergence'**, of redistributing wealth and resource use, the 'goods' and 'bads' of development. The political challenges of conservation and poverty are deep. We do not know how to deal with the outright selfishness of capital ism or the ignorance and short-sightedness of planners and resource users. We do not know how to take hard decisions, and avoid the endless tragic farce of non-.decision as a result of the interaction of consumer, capitalist, voter and politician. We need to re-integrate conservation with a broader environmentalism, and yet we do not know enough to do this with any confidence-about ecosystem function or how brittle ecosystems are (e.g. how many species we need in different ecosystems before they start to unravel). We have too few ways of explaining the value of nature beyond the 20th century's appeal to the powerful but meaningless ideas of wilderness or 'the pristine', or recourse to the language of monetary value. Conservation needs to take the implications of the Anthropocene seriously, & respond to them with greater ambition, As Orr wrote, "we are not told that the consumer way will have to be rethought and redesigned to exist with in the limits of natural systems and better fitted to our human limitations' that rethinking and redesign comprise the greatest challenge for both biodiversity conservation and poverty alleviation in the 21st century.*

Biodiversity Conservation & Poverty Alleviation:
Exploring the Evidence for a Link.
Eds Dilys Roe, Joanna Elliott, Chris Sandbrook, Matt Walpole

http://www.amazon.com/Biodiversity-Conservation-Poverty-Alleviation-Exploring/dp/0470674784/ref=sr_1_1?ie=UTF8&qid=1365425056&sr=8-1&keywords=Biodiversity+Conservation+and+Poverty+Alleviation%3A+Exploring+the+...#_



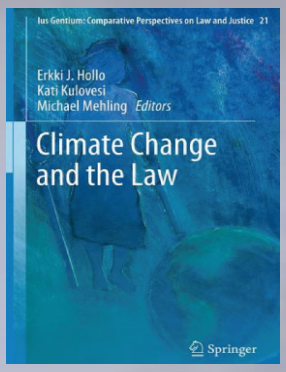
*Following GCI, Tom Athanasiou and Paul Baer and other climate justice activists thus propose a process of contraction and convergence. The rich nations of the North would be required to reduce (contract) their emissions of greenhouse gases to appropriate levels as determined by the atmospheric carbon target. Given global inequalities, the nations of the South would be allowed to increase their emissions gradually to a limited extent- but only if a nation had a per capita carbon emission rate below the acceptable level established by the target. This would create a world converging toward "equal and low, per capita allotments." Today '**Contraction and Convergence'** would necessarily aim at stabilizing atmospheric carbon dioxide at 350 ppm, in conformity with scientific indications.*

Such a proposal would mean that the rich nations would have to reduce their carbon emissions very rapidly by levels approaching 100 percent, and a massive global effort would be needed to help countries in the global South move toward emissions stabilization as well, while not jeopardizing sustainable human development. Such a process of contraction and convergence would require that the global North pay the ecological debt that it has accrued through using up the bulk of the atmospheric commons by carrying the main cost of mitigation globally and aiding nations of the South in adapting to negative climate effects.

In reality, the radical proposals discussed above, although ostensibly transition strategies, present the issue of revolutionary, change. Their implementation would require a popular revolt against the system itself. A movement powerful enough to implement such changes on the necessary' scale might well be powerful enough to implement a full-scale social-ecological revolution. Humanity cannot expect to reach 350 ppm and avoid planetary climatic disaster except through a major global social transformation, in line with the greatest social revolutions in human history. This would require not simply a change in productive forces but also in productive relations, necessitating a green cultural revolution. The answer to today's social and environmental crisis, as Lewis Mumford argued in the Condition of Man, lies in the creation of a new "organic person," and a system of sustainable human development. This means the creation of cultural forms that present the opportunity for balance in the human personality. Rather than promoting the asocial traits of humanity, the emphasis would be on nurturing the social and collective characteristics. Each human being would be "in dynamic interaction with every part of his environment."

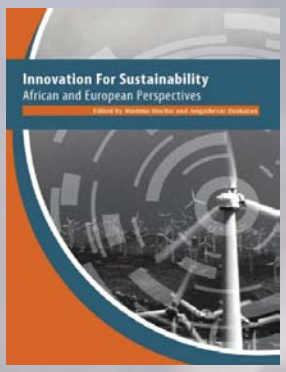
For revolutionary environmental thinker-activists, the first condition of sustainability is the restoration of genuine human community (and communities of communities). The concept of community, as Herman Daly and John Cobb insisted in For the Common Good, points to a social order with definite "communal" characteristics. It involves extensive collective participation in decision making, and thus necessitates, at its highest level of development, what the early communist Frdntrois Babeuf called "a society of equals," that is, a system of substantive equality. A society that is actively communal in this sense can arise only out of a strong collective bond, dissolving mere individual economic exchange. And, a sustainable community requires both the cultivation of a sense of place and the extension of the community ethic to what Aldo Leopold referred to as a "land ethic," incorporating the surrounding ecology. It is only at this point in human history, if it were to be reached, that we could speak of the implementation in full of the elementary triangle of ecology. The sustainable development of each would be the key to the sustainable development of all with both the each & the all now extended to the earth itself. Such a vital, humanistic-naturalistic community would require for its emergence, however, an ecological revolution against capitalism - the fall of Midas.

The Ecological Rift: Capitalism's War on the Earth
John Bellamy Foster, Brett Clark
http://www.amazon.com/The-Ecological-Rift-Capitalisms-Earth/dp/1583672184/ref=sr_1_1?ie=UTF8&qid=1365180097&sr=8-1&keywords=The+Ecological+Rift%3A+Capitalism%27s+War+on+the+Earth+By+John+Bellamy+Foster%2C+Brett+Clark%2C+Richard+York#reader_1583672184



*A well-known proposal is so-called '**Contraction and Convergence**' (C&C), proposed originally by the Global Commons Institute. The idea is first that future total of greenhouse gas emissions from human sources is decreased over time to near zero-emissions within a specified time-frame (contraction). To achieve this, global per capita average of emissions arising under the contraction rate is chosen (convergence), which thus varies in accordance with states per capita emissions. See GCI, "Contraction and Convergence: Climate Justice without Vengeance" available here (last accessed on 25 02 2012).*

Climate Change and the Law
Edited by Erkki Johannes Hollo, Kati. Kulovesi, Michael. Mehling
http://books.google.co.uk/books?id=oJAH17vc-2EC&pg=PA321&dq=%22Contraction+and+Convergence%22&hl=en&sa=X&ei=x65dUcu4KqXS0QXdgoCYDA&ved=0CDYQ6AEwAQ#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false



In recent years, the climate change debate has received renewed attention, because climate change associated environmental and socio-economic effects are more evident now than even before. In response, some agreements, such as the Kyoto Protocol, were signed between countries. These agreements establish flexible mechanisms and confirm the commitment of countries to stabilise or reduce greenhouse gas (GHG) emissions over the period 2008-2012.

However, these commitments do not include Developing Countries, such as China or India. Despite this weakness, the Kyoto Protocol remains one of the best instruments of economic policy against pollution at an international level and should be improved to integrate developing countries.

*Among many options for including these countries, scientists promote the approach of '**Contraction and Convergence**'. This method involves a substantial reduction in carbon dioxide emissions (Contraction) and gradual equalisation of per capita carbon dioxide emissions across countries (Convergence).*

The aim of this approach is to allocate commitments to countries, to reduce air pollution from greenhouse gases. Countries can set sustainable emissions budgets, and share this budget on a per capita basis. This scenario is different from the current protocol, where emissions rights are proportional to historical levels.

Emissions convergence can facilitate the participation of developing countries in pollution reduction, through adoption of an allocation scheme based on pollution per capita, without involving a substantial transfer of financial resources from developed countries to developing countries. Thus, the analysis of the convergence of air pollution is important in terms of international political policies.

Innovation for Sustainability: African and European Perspective
Edited by Mammo Muchie, Angathevar Baskaran
http://books.google.co.uk/books?id=4gAuIHNQlXMC&pg=PA49&dq=%22Contraction+and+Convergence%22+Africa&hl=en&sa=X&ei=mahdUcSyEY6r0AW0joGYDA&ved=0CDYQ6AEwAQ#v=onepage&q=%22Contraction%20and%20Convergence%22%20Africa&f=false

*In 2000 the Royal Commission on Environmental Pollution [RCEP] famously called for a 60 per cent reduction in carbon dioxide emissions by 2050, based on the principle of contraction and convergence. In doing so it paved the way for the 80 per cent target now enshrined in legislation. This illustrates France's bid for cognitive leadership by promoting an argument for policy norms based on fairness. The French approach bears similarities to the 'contraction and convergence' model promoted by Meyer (2000), which views the atmosphere as a global commons and distributes national responsibilities on the basis of international and intergenerational equity. In addition, China and the developing world have a normative preference for the **'Contraction & Convergence'** model.*

The European Union as a Leader in International Climate Change Politics Rüdiger Wurzel James Connelly
http://www.amazon.co.uk/reader/0415580471?_encoding=UTF8&query=contraction and convergence#reader_0415580471

STAND UP FOR THE EARTH COMMUNITY

Win the struggle against global warming

Fortunately, the world's nations have signed the UNFCCC – the United Nations Framework Convention on Climate Change, which commits all nations to work together to solve global warming. The UNFCCC allows for on-going negotiation of additional agreements, called 'protocols,' to guide the actions needed to solve the problem. The Kyoto Protocol is one such agreement negotiated committing nations to take some important 'baby steps' along the road of reducing greenhouse gas emissions. However, national governments now need to agree on a new protocol binding countries to reduce total global warming emissions to a safe level with targets and timetables.

Without such an agreement, all our individual and collective efforts will fail to solve the problem. What would a new binding protocol look like? The answer is called ***'Contraction and Convergence'****.*

C&C is a framework that makes governments agree on three vital questions.

1.First, what is a safe concentration of atmospheric greenhouse gases?

2.Secondly: When will total global greenhouse gas emissions be reduced to the amount needed to maintain atmospheric concentrations at the agreed safe level – 2050, 2100, next year? The sooner the better, of course, as the longer we wait the more harm is done to people and nature and the more expensive it becomes to fix.

3.The third important question a C&C framework would make governments reach agreement on is how the permissible annual amount of greenhouse gas emissions will be allocated between nations.

The simplest and fairest way is to give every person an equal share, called a per capita allocation. An important feature of C&C is it treats nations fairly. Under this framework, emission entitlements of people in a poor country will increase relative to what it is now, while that of people in a wealthy country will decrease. This is fair as historically poor countries have not caused the global warming problem and they need to now quickly develop to eliminate poverty. However, under a new C&C-framed protocol, all countries, including developing countries, will be committed to meeting their specified national greenhouse gas targets by the agreed date. Once a new protocol is in place, based on the equitable C&C framework, national governments can begin the complex task of working out how to most efficiently and fairly reduce emissions of greenhouse gases to the agreed safe level.

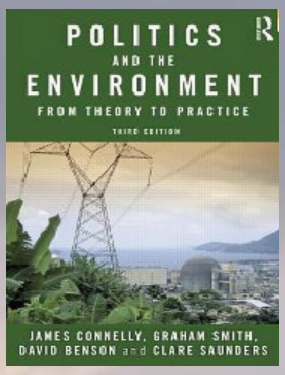
Yet many governments are reluctant to commit to the action needed to solve global, based on the narrow understanding of their responsibilities. Consequently, the world's nations will only agree to such a comprehensive agreement if they become motivated to act with a sense of universal responsibility. Nations need to expand their understanding of who belongs to their community of concern so this includes, in addition to their fellow citizens currently alive, people in other nations and future generations, along with species and ecosystems. We need to respect and care for the entire community of life, those alive now and future generations. Otherwise, why should governments bother making the very significant changes a new C&C framed protocol will demand?

Calling for nations to act with an expanded sense of universal responsibility and commit to a new C&C framed international legal agreement is no idle pipe dream. There are many examples of nations acting with an expanded sensibility that involved real sacrifice and commitments beyond those promoting national self-interest. The leadership shown by the USA Government during World War II was one shining example. The founding of the UN Charter was another such historic moment, as was the agreement on the United National Framework Convention on Climate Change at the Rio Earth Summit in 1992. But, we must be realistic given the current geo-political situation, for the global warming problem is too important to leave to good memories and ideals. What will generate the political will to motivate governments to act?

Implementing this strategy will be difficult and must be a main task tackled once we have in place a new legally binding climate agreement based on the C&C framework. The Stern report estimates the opportunity cost of forest protection in eight countries responsible for 70 percent of emissions from land use could be around $5 billion yearly initially. This may seem a large amount, but the cost of not solving global warming will escalate the longer we ignore it. And the world can afford such solutions; global military expenditure now exceeds one trillion (thousand billion) US dollars annually. We only need divert half of one percent of this expenditure to save the world's forests and make a significant, lasting contribution to resolving global warming. Establishing a carbon price, through tax, trading or regulation, is an essential foundation for governments to provide incentives for climate-change policy, giving economic value to stocks of carbon in mature forests.

Our place in history will be determined by how we respond to the challenge of global warming. History will judge us harshly if we fail to rise to the challenge, as we cannot claim ignorance. We have the necessary scientific knowledge and policy compasses to guide us along the way: UNFCCC, C&C, the Earth Charter. We must guard against false prophets who say it's too hard, too expensive, or too easy. The world is struggling to take the steps needed to resolve global warming; national governments are wavering when leadership is demanded. The time has come for each person to take a stand and become a leader in the war against global warming with an Earth Charter sense of our ethical responsibilities bringing about the vital collaboration needed.

Win the Struggle Against Global Warming Pacific Ecologist
http://www.gci.org.uk/Documents/earth-charter.pdf



*The Global Commons Institute has developed a plan **'Contraction and Convergence' -** contraction of overall emissions and convergence of Northern and Southern emissions. The proposal is in many ways a return to and development of the principles of the orgiginal UNFCCC.*

Politics and the Environment: From Theory to Practice
James Connelly, Graham Smith, David Benson
http://www.amazon.co.uk/gp/reader/0415251451/ref=sib_books_pg?p=S07H&keywords=contraction+and+convergence&ie=UTF8&qid=1305613590#reader_0415251451

*Another proposal is **'Contraction and Convergence'**. This proposal establishes a global trajectory towards a specific concentration level of carbon dioxide. Under this proposal, all countries agree an annually reviewable target and then work out the rate at which emissions must contract in order to reach it. Allocations of carbon dioxide converge by a specific date from current emissions to allowances that are proportional to national populations.*

Verifying Treaty Compliance
edited by Rudolf Avenhaus
http://books.google.co.uk/books?id=Sye4qSmw0hUC&pg=PA204&dq=%22Contraction+and+Convergence%22+UNFCCC-compliance&hl=en&sa=X&ei=CKVZUbG7FPTy0gWmqIDgDQ&ved=0CHAQ6AEwCQ#v=onepage&q=%22Contraction%20and%20Convergence%22%20UNFCCC-compliance&f=false

BMA

CONTRACTION AND CONVERGENCE

BMA Board of Science

• *Carbon offsetting is a way of mitigating GHG emissions by calculating individual's emissions and then purchasing 'credits' from emission reduction projects. For further information please see*

• *Carbon trading (often called cap and trade) is a way to cut emissions through providing an economic incentive to reduce CO2 emissions. For further information please see*

• ***'Contraction and Convergence'** conceived by the Global Commons Institute (GCI) in the early 1990s consists of reducing overall emissions of GHGs to a safe level, 'Contraction', where the global emissions are reduced because every country brings emissions per capita to a level which is equal for all countries, 'Convergence'. For more information on Contraction and Convergence please* www.gci.org.uk

Adaptation Adaptation is important in responding to the impacts of climate change and in supporting economic stability and sustainable development. [8] Potential adaptive responses include technological (eg sea defences), behavioural (eg alterations in lifestyle and food choices), managerial (eg changed farm practices) and policy changes (eg planning regulations). [9] There are potential costs with adaptation; for example, if farmers change to more climate resistant crops, which yield less. [8] It is important to note that while adaptation can lessen the negative impacts of climate change, it cannot resolve the causes of climate change itself. Therefore adaptation and mitigation are both needed as response strategies to climate change. Strong and early mitigation is essential and, without it, the costs of adaptation will rise, and the ability of countries' and individuals' to adapt successfully will be limited. [8 and 9] In terms of public health, adaptation is critical to lessen the risk of human disease, morbidity and mortality as a result of climate change. [10] Health systems will need to plan for and adapt to climate change, and take into account the associated costs.

EDITORIALS BMJ | 5 april 2008 | Volume 336

How should health professionals take action against climate change?

BMA report outlines the problems, but falls short in providing solutions

Newsewsews, p 740

So what solutions does the BMA report propose?

Several measures to reduce the amount of CO2 that we emit.

*These include carbon offsetting, carbon trading, and **'Contraction and Convergence'***

Each solution is briefly explained, with references so that people can find out more.

No effort is made to assess the relative merits of these very different strategies.

***'Contraction and Convergence'** is a profoundly radical strategy for each person on the planet to arrive at equitable and sustainable per capita greenhouse gas emissions."*

Global Commons Institute.
'Contraction and Convergence'
A global solution to a global problem [2000]

Contraction and convergence

Perhaps the boldest scheme for reducing global carbon emissions and one on the kind of scale that's needed comes in the shape of so-called contraction and convergence. Under this proposal, there would be a period of convergence, with the world's nations working towards a predetermined per capita carbon budget. At this point, it would be possible to begin a period of contraction, with carbon consumption being scaled back en masse. ***'Contraction and Convergence'*** *is not only the right way to solve the problem, it is the only way," says Aubrey Meyer, director of the Global Commons Institute and the architect of this scheme.*

In 2003, the secretariat of the United Nations Framework Convention on Climate Change acknowledged that its objective to stabilise the rising greenhouse gas concentration in the atmosphere inevitably requires contraction and convergence. Yet there is still no agreement on the details of how to take this plan forward. With the UNFCCC up for discussion at next month's Conference of the Parties in Durban, South Africa, Meyer is clear about what's needed. "There absolutely has to be a negotiation about the rate at which we converge on equal entitlements," he says. The consequences of putting this off hardly bear thinking about. During past mass extinctions, notably in the Permian era increasing temperature triggered the massive release of carbon stored in the soil, permafrost, and forests. If we reach this tipping point and we experience so-called 'runaway climate change', it's game over. Attempting to model that is like attempting to model your funeral after the event," says Meyer. It's ludicrous. In this brutal light, Homo sapiens starts to look like just another run-of-the-mill species, for which survival and reproduction are merely sorry steps towards ultimate extinction. I fear that the human species itself is not as highly evolved as we might wish it to be, says Adrian Lister, professor of paleontology at the Natural History Museum in London. Faced with this unsettling thought, it would be tempting to throw up our hands and retrench into our current, unsustainable ways. But this is hard to do with a conscience. As befits a product of natural selection, we humans are understandably fond of reproduction and there are few things that motivate us as much as our children do. But uniquely among evolved organisms, we are also able to predict what kind of a world we will leave them, and it doesn't look good. "We are on a track at the moment that could give us a temperature rise of 4 or 5°C by 2060," says Hugh Montgomery. "My younger son will be in his early 50s at that point, and that's not a world he will survive in. Doing nothing is not an option.

Unhealthier by degrees More than 300 delegates from healthcare, the military, climate science, industry, business, & politics met at a BMJ conference to consider the risk climate change poses to human health. **Henry Nicholls reports for the British Medical Journal October**
http://www.gci.org.uk/Documents/bmj.d6893.full.pdf

Over the past 20 years the view that human activity is disturbing the normal cycles of climate change has become widely supported by scientists. Fossil fuel burning has amplified changes in greenhouse gasses so that whereas levels of Carbon Dioxide have been below 300 parts per million over the past million years, they are now 380 ppm & rising rapidly. We doctors have explored and documented the likely health consequences of these changes. These are both direct, as in the extension of vector borne diseases associated with warming climates, and indirect, through for example crop failure due to changing weather patterns. The potential for a devastating impact on the health of all peoples is now clear, & if that was the end of the story, we would have reason to be despairing. Fortunately, there is another narrative which gives us reason for optimism and a basis for effective action.

Tackling climate change by radically reducing global fossil fuel use, but doing this in a way which enables poor countries to have head-room for development, will be of major benefit to health. This health promoting framework for tackling climate change is called ***'Contraction and Convergence'*** *- reducing the global carbon emissions, and dividing the residual carbon into equal entitlements for all adults. The consequence for health in our own country will be a phased increase in exercise, improving air quality, the greening of public spaces, and an improving diet with a decrease in meat consumption. When we consider that the majority of chronic disease is due to lack of exercise, inappropriate diets and poor air quality, this essential measure to tackle climate change transforms into an essential measure for tackling chronic disease. More widely the equal entitlement of carbon means that whilst we in the rich countries have to radically reduce our use of fossil fuels, those in poor countries have opportunities to sell some of their entitlement to us, and to use the rest to transform their societies. So 'Whats good for climate change is good for health." Through tackling climate change in this fair shares way we deliver benefits to our individual patients and to many others around the globe. The Climate and Health Council, which I co-chair, and of which Tim Ballard is a member, asks you to join us in ensuring that this transformative view of climate change is taken seriously in all negotiations. Go to our website, which suggests a range of actions you can take. In particular we ask you to sign our pledge. 6000 health professionals from many countries have already signed, and by adding your name we will get increasing evidence of our commitment to tackle climate change. We can use this evidence to give our negotiators the courage and space to make the appropriate decisions both nationally and internationally.*

Robin Stott - Co-chair, Climate and Health Council Contraction and convergence Royal College of General Practitioners
http://rcgpannualconference.blogspot.co.uk/2010/10/contraction-and-convergence.html

BMJ

SPOTLIGHT: CLIMATE CHANGE
Contraction & convergence: the best possible solution to the twin problems of climate change and inequity.

BMJ 2012;344:e1765 doi: 10.1136/bmj.e1765 (Published 19 March 2012)

'Contraction and Convergence' the best possible solution to twin problems of climate change & inequity.

The most feasible present framework that embraces these principles is ***'Contraction and Convergence'*** *(C&C). C&C is based on the science of limits and the logic of global rights. The global total of permitted emissions is calculated so as to achieve the objective of limiting and stabilising atmospheric carbon concentrations below the level beyond which runaway climate change becomes unavoidable (presently thought to be about 400 parts per million). This calculated amount of carbon (the global carbon budget) provides the quantum from which an inclusive, global, equal rights per capita entitlement of carbon is derived; an entitlement that will go to each adult. Emissions trading can then take place within the context of this scientifically calculated carbon budget and the rights based mechanism for distribution.*

The implementation of a framework founded on these principles will require tough negotiation, particularly around the speed of convergence to an equal per capita entitlement of carbon dioxide emissions, which can be no more than one and a half tonnes per person by 2050 (assuming a global population of 9 billion). Calculation of the initial carbon budget takes account of the present capacity of the global sinks: the oceans, soils, forests, and other flora that absorb CO2. If these sinks diminish, C&C enables the necessary recalculation; the contraction and convergence framework has the capacity to be modified in relation to evolving risks.

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Journal List > J R Soc Med > v.100(9); Sep 2007

The equal per capita entitlement of carbon emissions can be pre-distributed as carbon coupons to consumers who could then negotiate the sale of these coupons. Under-consumers (generally the poor) will have coupons to sell to over-consumers (generally the rich). Market forces will work for the poor as well as to reduce carbon emissions; a key feature of the scheme.

Putting the poor in control is a crucial development goal, as evidenced by the recent moves by donor agencies such as the International Red Cross to simply give cash to the poor. Recent publications testify to the efficacy of this approach. Equal entitlement under C&C has the added advantage that, in the early stages of the implementation of the framework, rapidly industrialising countries such as China, India, and Brazil (which are still relatively low per capita emitters of carbon) will be beneficiaries. Credits (entitlements) will be issued by the global institution that oversees global sustainable development and agrees and implements C&C. C&C envisages that a greater portion of these entitlements are delivered to individuals or small collectives. This commitment can be written into the global agreements. So also can the proportion of the entitlements that would be held by the country level group to cover communal facilities such as schools and hospitals. For instance, in the UK, the proportion of carbon emitted by collective rather than individual actions is around 40%, an indication of the proportion of entitlements that the UK would hold centrally.

The widespread uptake of microcredit and the penetration of electronic communication, especially mobile phone technology, provides a route for implementing C&C in poorer countries. And although C&C encourages low carbon solutions, it does not seek to define those solutions for any particular group. The agency of individuals and communities to use resources as they think best makes C&C nonintrusive and is one of the socially attractive properties of the scheme. No other framework quantifies allowable carbon emissions against an atmospheric CO2 concentration. No other framework allocates entitlements of this amount in a way which is to the advantage of underprivileged people in both the countries that are yet to industrialise and the rapidly industrialising countries. These unique features account for the significant level of global support for C&C, support which will be essential to getting the framework implemented. During the implementation of C&C, a period of no more than a few years, a low carbon development fund of at least $150bn must immediately be established. Much of the money could be raised by a tax on airline tickets and imposition of a $5 tax on each of the 20 billion barrels of oil used by OECD countries each year, or through the introduction of a financial transaction tax as advocated by Nobel prize winning economist James Tobin.

Time is of the essence. This is well understood by health professionals. After any serious trauma, a patient's chances of recovery are much greater if treatment is started within one hour of the event: the so called golden hour. Our traumatised globe is nearing the end of its golden hour. For the sake of present and future generations, we have to move quickly for our interventions to successfully heal the globe. An agreement to implement C&C cannot be delayed.

***'Contraction & Convergence'** is a strategy aimed at capping & then reducing carbon dioxide emissions (contraction) and by giving an equal entitlement of the capped carbon to every adult, ensuring that all get fair shares of this capped global carbon allocation (convergence).*

JOURNAL OF THE ROYAL SOCIETY OF MEDICINE 09 2007
http://www.gci.org.uk/Documents/JRSM.pdf

interview

Fiddling with climate change

Composer and string musician, turned award-winning environmentalist, Aubrey Meyer tells Nature Climate Change why he is campaigning for countries to adopt his 'contraction and convergence' model of global development to avoid dangerous climate change.

Aubrey Meyer Interviewed by Henry Nicholls UK, January 2012 For Nature Climate Change - http://www.gci.org.uk/Documents/Nature_Aubrey.pdf

What is contraction and convergence? - *It is a structured approach to meeting the objective of the United Nations Framework Convention on Climate Change (UNFCCC) to reduce the concentration of greenhouse gases in the atmosphere to a level that is both safe and stable. Contraction refers to the global reduction in greenhouse-gas emissions that is needed to prevent dangerous climate change. Convergence of the world's nations on an equal per-capita entitlement to the global emissions budget is not just the right way to get a global agreement over this contraction, it's the only way.*

Why is the convergence element so crucial? - *Without convergence, you will never get contraction. It's as simple as that. The atmosphere is a global commons and everyone has an equal right to emit greenhouse gases into it. If you don't stand for that, you have to defend inequality, which the majority will obviously reject. If that happens, contraction will be too little too late and runaway climate change will be the inevitable outcome. Climate change is an issue of survival, and equity is the price of that survival.*

How did you come to be interested in climate change? - *Up until the late 1980s I hadn't cottoned on to green issues at all. I grew up in South Africa, where I studied music at school and university. After I came to the UK in 1968, I spent the next 20 years as a professional musician and composer. I played the viola in the London Philharmonic Orchestra, which was wonderful, & wrote a fair amount of chamber music & two ballet scores. One of these — for the Royal Ballet — did spectacularly well, touring around the world to rave reviews. I was looking for the subject of a musical when I read about the murder of Chico Mendes — a Brazilian social activist trying to protect the Amazon rainforest. It was perfect material for a musical, but the more I researched the issue, the more horrified and dumbstruck I became. I was knocked sideways. I stopped playing music. I joined the Green Party and, in 1990, with several like-minded individuals, founded the Global Commons Institute. I sold my viola, specifically to buy one of the first desktop computers. It was like cutting off an arm, but I didn't think twice about it and I began to use spreadsheets to analyse and visualize climate data.*

How does a professional musician get his head around mathematical modelling of climate change? - *A musician never consciously goes round doing mathematics, but music is intensely mathematical. You have a constant length of string at a constant tension. If you halve the length of that string you double the frequency at which it vibrates so you get an octave. If you cut it in thirds you treble the frequency and get an octave and a so-called perfect fifth. This principle, first articulated by Pythagoras, is the entire basis of playing in tune and in time.*

What was the reaction to the contraction and convergence model when you first aired it? - *At COP2 [the second Conference of the Parties to the UNFCCC] in Geneva in 1996, we put up a huge poster-sized graphic of the model — the response was tremendous. It really was. In the run-up to COP3 in Kyoto, I was invited to Washington DC and to Beijing to explain the contraction and convergence model in detail. I was bloody terrified. At that stage, I was still seen as a cute musician, a kind of a drop-out. I didn't know what the hell I was doing in the middle of this manic negotiation except that I was really frightened about the issue. It felt a bit like South Africa under apartheid, with a kind of privileged enclave within a much wider sea of underconsumption.*

What happened in Kyoto in December 1997? - *In the final session of negotiations, China, India and the Africa group all came out strongly in favour of contraction and convergence. The United States agreed. At which point, the chairman suspended the meeting out of the blue.*

So although the Kyoto Protocol paved the way for emissions trading between developed and developing nations, it fell short of addressing the rate for convergence on equal per-capita carbon entitlements. From that day until this, we've had this stupid, fruitless row, with countries simply plucking emission-reduction targets out of a hat. This has simply led to the sum of ill-will and reluctance, and is nothing like the contraction of emissions that's needed to achieve compliance with the UNFCCC objective. If we pursue that model any further it'll be clear to everybody that we haven't got a hope in hell. The reason for pushing contraction and convergence is not simply because it is nice and it is fair, but because we really don't want to be melted down in a runaway damage curve that will inevitably follow any further disagreement.

Given this scenario, why has there been so little movement on convergence since the 1990s? - *There has been a complete refusal to negotiate over the rate at which nations should converge on equal entitlement. At COP15 in Copenhagen in 2009, the developed nations put forward the Danish Text, which prescribed convergence to equal per-capita entitlements by 2050, completing contraction by 2100. Such an arrangement effectively ignores the interests of developing nations, who would like to see convergence on equal entitlement with immediate effect.*

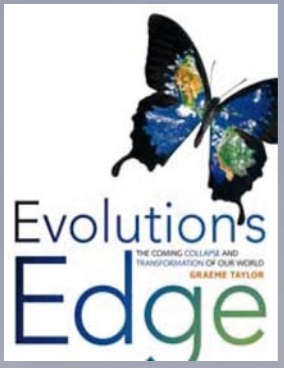
That's equally unrealistic isn't it? - *So there has to be a negotiation. In other words, the date for convergence to equal entitlement needs to be somewhere between now and 2050. The states need to engage. How about convergence by 2030? Would that be a suitable compromise? This is absolutely what is needed at COP17 in Durban.*

Isn't it understandable that western politicians should be reluctant to enter into such a negotiation? - *It is completely understandable. For a developed economy, rapid convergence is going to be painful. Our well-being, our salaries and our future hopes are all tied to more wealth rather than less wealth. We are subtly loyal to the system that has fed us so well until now. It would be nice to imagine that we can continue to grow gross domestic product while reducing greenhouse-gas emissions. But the two are extremely closely linked and nobody's ever achieved it anywhere.*

How about growing solar, wind, hydro and other renewable technologies? - *Investing in renewables is the only conceivable way to fire up your economy without increasing emissions. The renewable sector is very active, but it is continually frustrated by the fact that the commitment to fossil fuels is so strong, so multinational and so dug in. The emergence of a truly effective renewable-based economy is not going to be an accident. It's not going to be the result of talking up technology and getting the banks to invest a bit more money. It will only be the result of a really strategic, coordinated, structured, determined, goal-focused process such as contraction and convergence.*

Multinational negotiation on climate change doesn't have the best track record. The kind of global consensus you're asking for is completely unprecedented. - *It responds to a completely unprecedented global challenge. We've never remotely faced a threat like this. It is orders of magnitude greater than all the other problems we've faced. The negotiators, the civil servants, the media and the public are all horribly out of touch with the basic arithmetic. If we enter a phase of runaway climate change — if the terrestrial and oceanic carbon sinks turn to sources — it's curtains for us.*

Why do you think contraction and convergence will save us from dangerous climate change? - *The whole essence of contraction and convergence is conflict prevention. We don't want this to end in nations tearing each other's throats out.* ***'Contraction and Convergence'*** *is Mandela — it's truth and reconciliation, and justice without vengeance. I think it is achievable because it's simple, it's rational, it's communicable and there's a very good reason to do it.*



The question of economic justice is central to resolving major global issues and creating a sustainable global system. The poorest four fifths of the world's population will never agree to any arrangement that leaves them with less than their fair share of the Earth's resources. And yet no meaningful change is possible without their agreement - although the Chinese produce less pollution per person than Americans, their huge population means that China now emits more green house gases each year that the United States.

This problem can be solved using a principle called ***'Contraction and Convergence'*** *(C&C). C&C means that developed nations should reduce their emissions while allowing developing nations to increase their emissions until all nations are emitting the same per capita levels of greenhouse gases. Sir Nicholas Stern proposes that average global emissions need to be reduced from their present levels of about 7.7 tons (seven tonnes) per person per year to around 2.2 tons (two tonnes) per person. This would mean that Australia and the US, which produce about 22 tons (20 tonnes) of pollution per head each year, will need to make reductions of 90%; while a developing nation like India, which now produces almost 2.2 tonnes of greenhouse gases per person, will have to prevent its per capita emissions from rising.*

While C&C is an important principle and one that developing nations are likely to agree to, it is only part of the solution. The challenge is not just to negotiate a fairer way for continuing to pollute and increase global warming but to negotiate agreements that stop further pollution and begin to reduce global warming. Erwin Jackson, Policy Director of the Australian Climate Institute, said that Sir Nicholas' targets were dangerously conservative. "What he's saying is that it is OK to get on a plane if there's a 50% chance it will crash. The kind of stabilization targets he ... talk[s] about would only give us a 50·50 chance of avoiding dangerous climate change."26

The only solution that is both ethical and sustainable is for every person on the planet to be assigned the right to their fair ecological footprint (their Earthshare).

Any person who consumed and polluted more than their fair share of resources would have to purchase extra resources from other individuals who were consuming less than their share. There are multiple benefits to this approach. It is ethical, logical and practical; it creates a market mechanism for creating a sustainable global economy; it rewards conservation rather than consumption and it provides a simple system for redistributing resources fairly and eliminating the worst poverty on the planet.

Of course, no nation is likely to agree to reduce their consumption of resources and production of waste if this will necessitate a reduction in living standards. It will only be possible to secure international agreement when people can see that their economic security will be improved by the creation of a fair and sustainable global economy. A paradigm shift will need to occur for the nations of the world to change their destructive environmental habits: most people will have to recognize that further economic growth is only possible if it takes place within environmentally sustainable limits; and most people will have to realize that the fastest growing sectors of the economy are those that are reducing their use of increasingly scarce and expensive resources.

Evolution's Edge: The Coming Collapse & Transformation of Our World Graeme Taylor

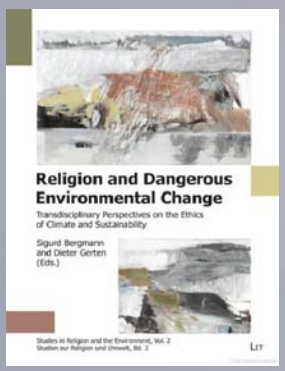
http://www.amazon.com/Evolutions-Edge-Coming-Collapse-Transformation/dp/0865716080/ref=sr_1_1?ie=UTF8&qid=1365059887&sr=8-1&keywords=Evolution%27s+Edge%3A+The+Coming+Collapse+and+Transformation+of+Our+World#_

*Dig beneath the surface of ecological issues and for many people, apart from fear, the second most significant factor driving our responses is guilt. So much of the discourse around ecological responsibility has the feel of a new legalism, a set of norms available to external quantification and verification that can at best provide useful guidance and at worst either crush motivation or provide an open door to self-righteous superiority. Indeed, the whole concept of an ecological or carbon footprint is ripe for interpersonal comparison and when linked to moral judgements of the necessity of reducing it, the full range of contemporary ecological psychoses becomes manifest: holier-than-thou accusation, desperate performance, pious self-denigration, tokenistic conformity, resentful rejection, weary indifference, paralysing despair.If we are nonetheless to take our ecological concerns seriously (as the scriptures, reason and a passing familiarity with our present condition suggest), then do we have to live with such legalism? Of course not. Basically, we need a way to talk about the good life to which Christ calls us that speaks in the tones of grace not law (apart from the law of love). This good life may well often look like taking up a cross and denying myself, but I walk it in hope and faith that the path of love is ultimately the path of life, even if I have to wait for God to raise the dead to see it. We are set free by Christ to live as servants of God and neighbour. This is the only path to life, and at times it can feel narrow, and yet the content is actually quite flexible. Andrew Cameron speaks of the ethical life as being like a river - there is a strong current in one direction (love), but within that, there is water moving in all kinds of ways, at different speeds and so on. Yet there are still river banks. This is his attempt to speak of how the scriptures can be quite specific in their prohibitions ("do not lie"), but general in their exhortations ("love your neighbour"). The question for us as Christians seeking to follow Christ amidst a world of ecological degradation is therefore: what is the space of Christian ecological freedom? Where are there hard lines that we ought not cross? And, much more importantly, how do we talk about (and live) the strong current of love? Complicating matters is the fact that many aspects of our ecological crises are cumulative, involving too much of an otherwise good thing, rather than the commission of acts that are in themselves always wrong. In this way, I think that ecological irresponsibility has a somewhat similar structure to drunkenness, or gluttony. I may know that once I have had ten drinks, then I am in disobedience to the warnings of scripture against inebriation, but there is not necessarily a line we can draw in the sand and say that up to this many drinks is I am simply enjoying the fruit of the vine. Perhaps legal blood alcohol limits for driving might give us a ballpark estimate, and perhaps '**Contraction and Convergence'** models of carbon reductions (applied on a per capita basis for our nation) might give us a ballpark estimate for our the path of our personal carbon footprint goals, but the law of the land is always going to be both too precise and too blunt an instrument for forming the mind of Christ within us. If our goal is defined too narrowly in terms of emissions levels or atmospheric concentrations or personal footprints, then the complex world of goods and the discernment required to navigate it can become oversimplified. Even amidst the perils we face, Christian obedience is a path of freedom & joy, of trusting the goodness of God under the weight of a cross, of dying to self & receiving new life being granted as a gift. Some better questions: How does new life in Christ lead into delightedly sharing my neighbour's burdens? In what ways are my neighbours threatened by ecological degradation? Which parts of my life & the life of my community contribute to this path of destruction? How can I discover new patterns of thankfulness, contentment & engagement to express the peace I have received from Christ and the deep concern for my neighbour this grants me?*

http://nothing-new-under-the-sun.blogspot.co.uk/2011/09/ecological-legalism-and-christian.html

*The attractiveness of GDR has faded at a closer look. In terms of political feasibility, '**Contraction and Convergence'** has clear advantages because high-rank politicians, like Angela Merkel, have verbally agreed upon the C&C idea. For Northern countries, the economic impacts of C&C are severe but viable under a prudent long-term transition management while the distribution effects of GDR might be beyond control. The North clearly is not bankrupt after the financial crisis of 2009 but the effects of a GDR regime on employment, on domestic social security systems, and on taxation schemes have not been assessed yet. Even from an ethical perspective GDR must be seen with a critical lens because it combines an emergency ethics that allows for uncommon measures with a highly conventional approach to development as being defined in terms of monetary income. GDR seems to place the right to create monetary income at the centre of the system of human rights. If so, there are reasons to claim that a C&C-concept that must be enlarged to the domain of adaptation & might adopt some important points from GDR is, all things considered, the 'better' concept.*

Domains of Climate Ethics; Konrad Ott
http://www.gci.org.uk/Documents/Ott_Domains_Climate_Ethics_.pdf

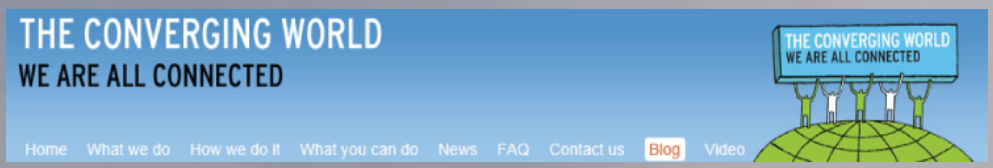


*In 48 points or "better steps", German philosopher and envrionmental ethicist Konrad Ott continues "Kronolid's struggle with the ethical implications of climate change by elaborating basic foundations on existing and necessary policies for climate change. The short sections are consistently formulated as "ethical claims" and the reader should approach these slowly and with concentration, so that the subsequent steps are converted into one single walk and path. At the core of the author's argument lies the climate-ethics concept of '**Contraction and Convergence'.** It provokes a constructive debate, & presumes to to support a concept that has been regarded as "Utopian a decade ago but has now entered the political stage. What might it contribute to international climate policy in a nondistant future?*

Religion & Dangerous Environmental Change Bergmann Gerten
http://books.google.com.pe/books?id=xu3w1OW9AQkC&pg=PA195&dq=%22Contraction+and+Convergence%22&hl=en&ei=zyrhTcCcMoSq-gbq-dnABg&sa=X&oi=book_result&ct=result&resnum=10&ved=0CFgQ6AEwCTgK#v=onepage&q=%22Contraction%20and%20Convergence%22&f=true

*Two models are currently being pitted against one another in the discussion of a fair climate regime: '**Contraction and Convergence'** (C&C) and Greenhouse Development Rights (GDR s). The controversy revolves around issues of fairness and feasibility, and the question of how fair is fair enough. Other approaches with the potential to mitigate emissions fairly are not in discussion at present. The debate over these concepts is vital, as having actors who are individually committed to ambitious goals but divided at the conceptual level could prove fatal for climate policy as a whole. The following is an overview in the magazine of the Heirich Boell Foundations of the core elements of both with Katrin Krause and Konrad Ott for C&C and Tilman Santarius for GDRs.*

How Fair is fair Enough?
http://www.gci.org.uk/Documents/Boell_C&C_GDRs_.pdf



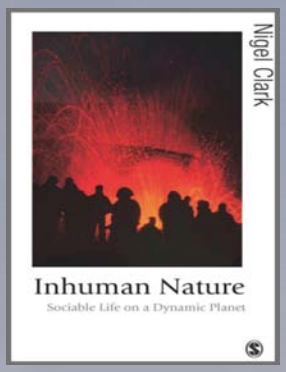
*Between 1992 & 1995, the GCI highlighted the worsening asymmetry, or "Expansion and Divergence" of global economic development. It was clear the global majority most damaged by climate changes were also already impoverished by the economic structures of those who were also now causing the damaging emissions. To create a sustainable basis on which to resolve this inequity, GCI developed the '**Contraction and Convergence'** (C&C) model for future emissions. In 1995 the model was first introduced by the Indian Government. Since then C&C has been widely referenced internationally in the debate about achieving the objective of the UNFCCC. In 2000, C&C was the first recommendation of the UK RCEP.*

'Contraction and Convergence' - Where did all this start?
http://www.theconvergingworld.org/node/38

*Now, the problem with the per capita approach in its pure form is its disregard for these differences. It cannot address variations in national circumstances that have an important bearing on emission levels or mitigation costs, such as weather conditions, the availability of renewable resources and of sinks, the ability to pay, and energy intensity and efficiency of energy use. 'A high endowment of hydro resources, high dependence on nuclear energy, a high level of industrial efficiency, or an exceedingly cold climate can have correspondingly favourable or adverse influences on the per capita emission levels'. Ott & Sachs, suggest replacing the idea of an absolute egalitarianism with the notion of 'adjusted egalitarianism'. This notion implies a certain flexibility: the egalitarian rule should be considered as a long-term guiding principle - a Leitbild - & not as a rigid planning objective for planetary redistribution, used to prescribe the necessary outcome. They describe the '**Contraction & Convergence'** approach as a framework that bears an egalitarian stamp and is at once flexible enough to allow the necessary adjustments to be negotiated. C&C was first introduced by GCI in 1995. Its central idea is that all countries arrive at the acceptable level of economic development. Total emissions should contract over time, and per capita emissions should converge on a single figure. The actual convergence value, the path towards convergence & the time when it is to be reached would all be negotiable. The proposal allows for emission trading using mechanisms of the kind permitted under the Kyoto Protocol. The C&C approach has been consistently advocated at the sidelines of climate politics and, over the years, has received increasing support from some NGOs & governments. It was mentioned for the first time in an official agreement in 2001. In the Marrakesh Accords the industrialized countries are asked to reduce emissions 'in a manner conductive to narrowing per capita differences between developed and developing country Parties'. IPCC low concentration scenario results in a CO2 concentration of 450 ppmv CO2 & a total greenhouse gas concentration equivalent to about double pre-industrial levels. This would produce a long-term temperature increase of about 2.5 C at the present best estimate of climate sensitivity. However, it is difficult to maintain that such a target would be tolerable with respect to the human rights of considerable sections of the world population. A lower target is required. taking into account not only the aggregate cost of dimate change mitigation, but also protection of the inalienable livelihood rights of la rge numbers of world citizens. The Climate Action Network has therefore called for a target which keeps the global mean temperature increase below 2 C above pre-industrial levels, with the temperature being reduced as rapidly as possible after the time that it peaks. Such a target is unlikely to be 'safe', but the probability of a large scale dangerous change would be lowered for most regions. So far, both Northern and Southern governments have shown little interest in defining low danger emission caps in the climate negotiations. All parties disregard that when it comes to capping emissions. The choice is between human rights & the need for affluence. The task of keeping the temperature rise below 2 C appears too large & too threatening to the economic interests of consumers & corporations. It still seems to have escaped the attention of Southern countries that dimate protection is of the utmost importance for the dignity and survival of their own people. It is time they become protagonists of climate protection, as climate protection is not simply aoout crops and coral reefs, but fundamentally about human rights. The point of convergence of North & South on equal emission levels cannot be achieved at the expense of contraction, the transition to globally sustainable levels of emissions. Again, sustainability gives rise to equity & the vision of '**Contraction & Convergence'** combines ecology & equity most elegantly. It assumes global environmental space is finite & attempts to fairly share its permissible use among all world citizens, taking into account present & future generations.*

Ethical Aspects of the UNFCCC Wolfgang Sachs

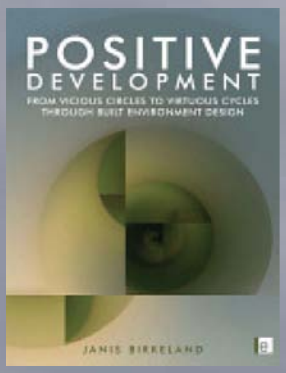
http://books.google.co.uk/books?id=J2eh2B1nce4C&pg=PA98&dq=contraction+and+convergence&hl=en&ei=DqrbTZDvHsep8QOVk7zwDw&sa=X&oi=book_result&ct=result&redir_esc=y#v=onepage&q=contraction%20and%20http%3A%2F%2Fwww.gci.org.uk%2FDocuments%2FKyoto_and_the_Ethics_of_Flexibility.pdf&f=false



*Of course, political activists of all stripes are aware of the suppleness of modernity's axioms. Nonetheless, the possibility that future generations might be denied basic opportunities open to present generations, that some nation states may be precluded from following developmental paths previously taken by others, or that the life chances of the populations of some parts of the planet will be seriously infringed upon by the activities of those who live in other places, are options that no serious actor on the global political stage can be seen to condone. 'Avoiding dangerous climate change' & 'levelling the international playing field' with regards to sharing the costs and benefits of climate change deemed tolerable, have taken shape as effectively inseparable aspects of the same problem. As Latour puts it, a previous distinction between representing things and representing people has vanished: scientific controversy has now firmly enmeshed itself with political discussion. Precisely how these twin challenges are to be met, as we might expect, elicits deeply divergent responses. From the Brundtland report's early championing of sustainable development to the Kyoto Protocol's recommendation that industrialized nations take the lead on reducing greenhouse gas emissions while helping late industrializers on to low-carbon development paths, and on to Copenhagen's watery recommitment to international cooperation as a way to help developing countries along low-emission pathways, major initiatives in global environmental governance have sought to reconcile socioeconomic justice with the avoidance of irrevocable climate change all the while continuing to believe in the possibility of economic growth without end. At the same time, dissenting voices have consistently underlined the inadequacy or implausibility of such equations. Aubrey Meyer's (2000) principle of Contraction and Convergence notably, seeks global equity through drastic reductions in industrialized countries' emissions. The principle of '**Contraction and Convergence'** while hinging on the absolute equitability of allocating every person on earth the right to the same quantity of carbon emissions, in practice calls for a dramatic reduction in the non-renewable energy use of the most industrialized populations."*

Inhuman Nature Nigel Clark

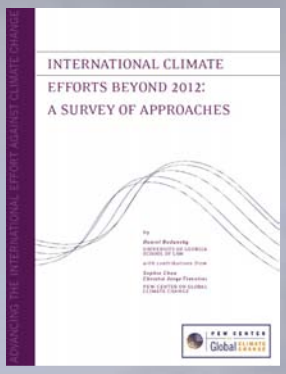
http://www.amazon.co.uk/Inhuman-Nature-Representation-Published-association/dp/0761957243/ref=sr_1_2?s=books&ie=UTF8&qid=1296589153&sr=1-2#_



*Tools such as Environmental Footprint analysis foster environmental awareness among the educated. But if misapplied, they can reinforce buck passing or 'blame games'. This is one way some large industries and bureaucracies avoid change. For example, some fossil fuel interests spawned arguments about the causes and measurements of global warming for years. Some got bogged down in whether climate change was 'natural' or not - when we could not afford biodiversity, financial and other losses in any case. Likewise, large company ads managed to divert issues surrounding the fossil fuel supply chain towards individual behaviour. For example, the spotlight on plastic bags distracts attention from oil spills. Because environmental issues are presented in terms of individual consumption, environmentalists have been portrayed as people that want to 'tell others how to live: The concept of 'environmental space: proposed by the environmental organization Friends of the Earth in the 1990s, start from a somewhat different place. It estimates the sustainable use of resources such as timber and oil, or allowable greenhouse gas emissions, and divides that by the world population. This measures how far an individual, city or nation is from sustainable consumption, It is a form of absolute sustainability standard, as opposed to a relative one. To calculate environmental space, one only has to work out the stocks of resources – not calculate all the flows at each stage of production or regional boundary. This approach is championed by GCI through '**Contraction & Convergence'.***

Positive Development From Vicious Circles to Virtuous Cycles through Built Environment Design Janis Birkeland

http://books.google.co.uk/books?id=VpgjAQAAIAAJ&q=%22Contraction+and+Convergence%22+Conflict&dq=%22Contraction+and+Convergence%22+Conflict&hl=en&sa=X&ei=EetSUdaDBPOW0QWswoHYDg&ved=0CEoQ6AEwBDgK



CONTRACTION AND CONVERGENCE

SUMMARY / RATIONALE:

• Long-term pathway for evolution of the climate regime, reflecting principle that national GHG emissions should converge at a common per capita level.

• Involves two steps:

(1) specification of a global emissions budget leading to an agreed long-term concentration level ("contraction");

(2) sharing of emission entitlements among countries so that per capita emissions converge by an agreed year ("convergence").

FORUM: UNFCCC

• Negotiations principally between regions of the world, with further negotiations within regions.

TIME FRAME:

• Long-term. Countries would agree on a "safe" level of atmospheric GHG concentrations (no higher than 450 ppm CO2 equivalent) and a "full-term" (100-year) emissions budget consistent with that goal.

MITIGATION COMMITMENTS

• Types of Commitments

• Targets: Each country would receive a share of the overall full-term emissions budget, in the form of tradable "entitlements" to emit.

• Inter-regional, international and intra-national trading of entitlements would be encouraged.

• Differentiation: Applies to all countries.

• Allocation / Burden-Sharing Approach: The full-term emissions budget would be allocated among regions based on a negotiated rate of linear convergence to equal shares per capita globally by an agreed date, such as 2030 or 2040.

•Further negotiations would be held within regions to determine national emission budgets.

OTHER ELEMENTS

•Rates of contraction and convergence to be periodically revised to reflect improved scientific and economic understanding.

PROPOSED BY

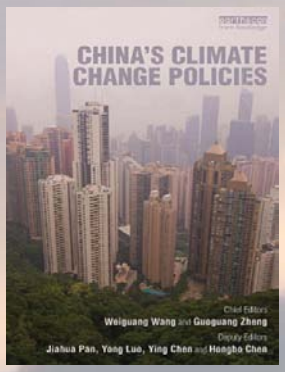
• Aubrey Meyer, Global Commons Institute

SOURCE

• Global Commons Institute. See C&C text in 13 Languages

International Climate Beyond 2015 Bodansky Pew Centre

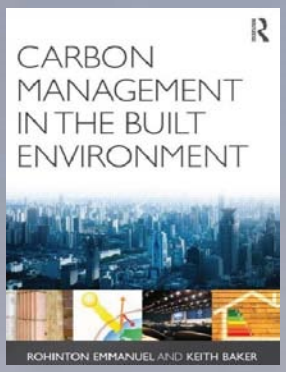
http://www.gci.org.uk/Documents/2012_PEW.pdf



*The '**Contraction and Convergence'** (C&C) approach from the Global Commons Institute (GCI) in the UK (Meyer, 2004) puts forward the idea that both developed and developing countries should adopt a realistic attitude and, taking their respective per capita emissions as the standard, advance toward gradual convergence, finally realizing equal per capita emissions at a future date.*

China's Climate Change Policies
Edited by Wang Weiguang, Guoguang Zheng, Jiahua Pan

http://books.google.co.uk/books?id=3Au2KcvZjR8C&pg=PA267&dq="Contraction+and+Convergence"+Conflict&hl=en&sa=X&ei=X6dSUdDtDaPP0AXam4AI&ved=0CDYQ6AEwAQ#v=onepage&q=%22Contraction%20and%20Convergence%22%20Conflict&f=false



Contraction and Convergence

*One of the most widely advocated and scientifically sound models for resolving this problem of reducing global emissions whilst ensuring greater equity is '**Contraction and Convergence**'.*

C&C, as it is known, was originally developed by Aubrey Meyer of the Global Commons Institute (GCI). However, the term has been adopted more widely, and where it is used it is important to know whether or not the specific model is being referred to. C&C begins with the principle that the developing world should be allowed to develop whilst the developed world begins to reduce its emissions, and then models these trajectories over time to meet emissions goals of 350 ppm, 450 ppm and 550 ppm. The best way to understand C&C is to inspect the highly zoomable diagram produced by the GCI.

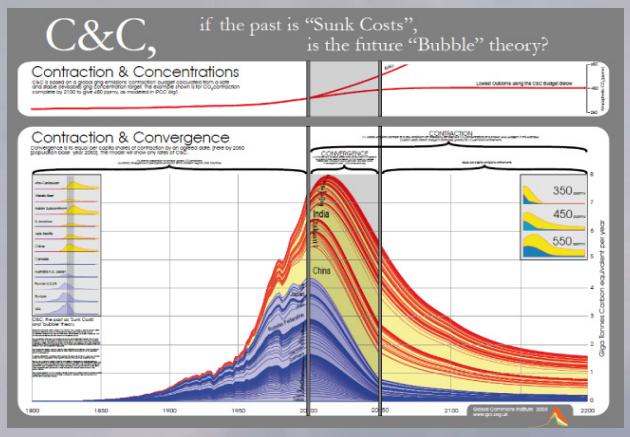
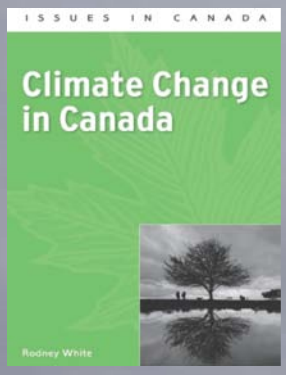


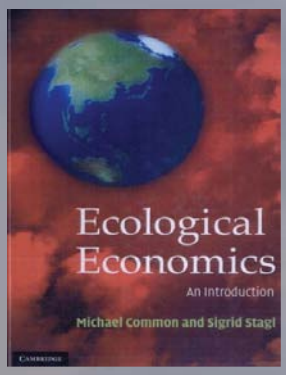
Figure gives a snapshot of the diagram, which is free to download from the GCI website: - http://www.gci.org.uk/images/All_Country_C&C.pdf

Carbon Management in the Built Environment
Rohinton Emmanuel, Keith Baker
http://books.google.co.uk/books?id=YichPartackC&pg=PA212&dq=%22Contraction+and+Convergence%22&hl=en&sa=X&ei=Jl4bUP_jG8bN0QXZr4HICA&ved=0CDkQ6AEwAQ#v=onepage&q=convergence&f=false



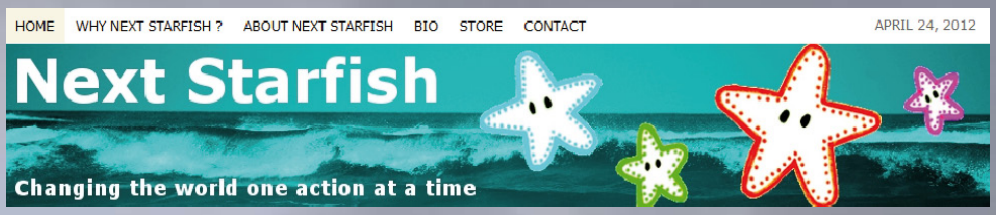
*'**Contraction and Convergence**' - A proposal to reduce global GHG emissions in which every country converges on the same per capita allowance for emissions. The rich countries would reduce their per capita emissions, while poorer countries could increase them.*

Climate Change in Cananda Rodney White
http://www.amazon.com/dp/0195430603/ref=rdr_ext_tmb#reader_0195430603



USEFUL WEBSITES

• For the texts of the 1992 UNFCCC and the Kyoto Protocol and up-to-date information on the situation in regard to ratification, COPS, etc., visit the UNFCCC website at: -
• The latest information on the work of the IPCC is here In the UK the government department mainly responsible for climate change matters is the Department for Environment Food and Rural Affairs DEFRA here
• USA Environmental Protection Agency, EPA here
• Resources for the Future (RFF) here a 'think tank' primarily concerned with environmental issues.
• The former provides information about the stratospheric ozone-depletion problem and the Montreal Protocol which addresses it.
*• The ISEE encyclopedia at has a very good entry 'The Kyoto Protocol and its flexibility mechanisms' which gives addresses to websites where can you can get up-to-date information on how the use of them is evolving.•The Global Commons Institute aims to promote the protection of global common property, and focuses mainly on the enhanced greenhouse effect, where it advocates '**Contraction & Convergence**' whereby global emissions are progressively reduced and everybody in the world has an equal share of the global total.*
• See also the World Resources Institute

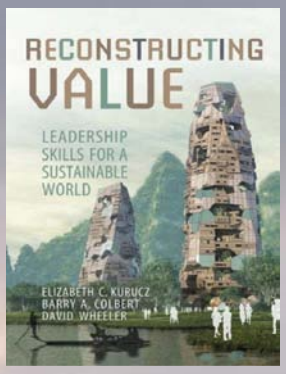


You might not have come across the word Apologetics before. It refers to the practice of defending a position or point of view against critics or opponents. It's often used in a religious, or occasionally philosophical or political context . . . but I'm using it here in a scientific sense. A climate change sense, to be specific.

As I've written before, I share the view that man-made climate change is real and occurring as a consequence of our use of fossil fuels, and also share the concerns of numerous organisations and individuals that this will have a potentially devastating effect on people everywhere, especially the world's poorest and most vulnerable. Responding to rising sea levels, repairing after more extreme weather events, ensuring sufficient water and food supplies and managing the resulting mass migrations that are likely to occur all look set to become incredible challenges for our warming world. What we should do about this, is a legitimate subject for debate. Less fossil fuels? More renewables? More nuclear? More tree planting? Less deforestation? Lower energy agriculture? More efficient agriculture? Less meat? GM crops? Geo-engineering? Adaptation? Tax? Subsidies?

*It makes sense to me to do what we reasonably can to quickly decarbonise our economies, and that in the interests of fairness, most of the cost of this should be borne by the richest economies and people in the world (ie: us). This approach is broadly known as '**Contraction and Convergence'**. This is my opinion – everyone else will have their own. We're all entitled to our own opinions, but there is seemingly ever more disagreement about the facts presented in the media.*
http://nextstarfish.com/?p=9838

Decoupling and Social Justice



*'**Contraction and Convergence'** is a framework applied to combine problems of resource use and negative impacts with principles of global equity and justice. "Contraction" refers to the need to cap and then reduce in absolute terms the rate and amount of material extracted (e.g., lumber, minerals) or negative impacts produced (e.g., tons of greenhouse gases). "Convergence" means striving for global equity by having developed Countries contract more, while developing Countries are allowed to catch up. This model is a tough sell to developed Countries especially, but is proposed as the only way to simultaneously stay within environmental limits and enact equitable levels of development globally - the two main goals under a sustainability mindset.*

The International Resource Panel (IRP) of the United Nations Environment Programme (UNEP) constructed three scenarios to help describe the urgency of decoupling resource use and negative impacts from economic growth, along with the implications of social justice via contraction and convergence. The three scenarios illustrate options for 2050 with a 2000 baseline, using UN median population projections, and assuming that all countries will converge to similar per capita levels of resource use. The IRP allows that its scenarios arc unrealistic on two counts: there is little evidence of convergence happening globally and there are no physical constraints built in, which is unlikely to be the case. In that regard, the scenarios illustrate the implications of ignoring constraints, as is typical of mainstream growth models. Historically, when consumption rates bumped up against supply constraints, conflict ensued.

Reconstructing Value Kubrucz, Colbert and Wheeler
http://books.google.co.uk/books?id=UP6Mcp0wIRoC&pg=PA249&dq=%22Contraction+and+Convergence%22+Social+Justice&hl=en&sa=X&ei=UdtIUc_ENcSo0AWy-oCYAg&ved=0CDIQ6AEwAA#v=onepage&q=%22Contraction%20

‘Contraction & Convergence’

http://www.climateconsent.org/pages/introduction.html

The catalyst for effective action on emissions will be a global treaty that requires all nations to play a proportionate part in cutting global carbon emissions over an agreed period until the concentration of CO2 in the atmosphere is stabilised at a precautionary level. Such a treaty must relate carbon targets to the latest scientific understanding, not politically convenient ratios of past emissions.

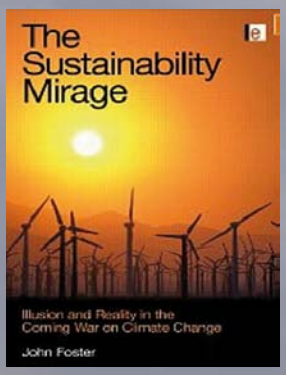
Frustration at UN climate negotiations and the Kyoto Protocol’s inadequate carbon targets have prompted alternative frameworks for cutting global carbon emissions (some are explored elsewhere on the website) which do not figure on the current UN agenda.

***‘Contraction & Convergence’** predates the Kyoto Protocol, which was agreed in 1997. C&C was then considered too radical, but it is now increasingly regarded as the only formula that has a real chance of reconciling the interests of the biggest carbon polluting nations with the rest of the world. Wider public understanding of C&C is essential.*

C&C was developed twenty years ago by Aubrey Meyer, who has tirelessly championed it through the Global Commons Institute, ever since. www.gci.org.uk

Meyer has won many awards for his work, among them from United Nations Environment Programme, the Schumacher Institute and the Royal Institute of British Architects. In 2008, a cross party group of British MPs nominated him for the Nobel Peace Prize.

Like most great ideas, C&C combines rigour with simplicity. By linking emissions to population and a global trade in per capita carbon entitlements, it provides a ‘carbon reduction score’ which all nations can perform together on equal terms. We have made a short video summary to explain the principles of C&C
http://www.climateconsent.org/pages/videosummary.html



The total framework within which a UK carbon-rationing regime must be established if the goal really is climate victory is pretty simple in outline for all that. It depends in fact on one of those solutions which is so simple that no-one could see it until it was formulated by a non-expert thinking outside the box. This is the framework known as contraction and convergence (C&C), first proposed by a tiny NGO called the Global Commons Institute in 1990. It is probably best explained in the words of Aubrey Meyer, the man behind it: -

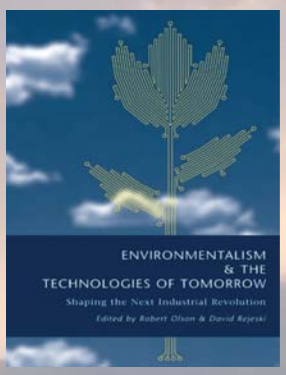
> *“Global greenhouse emissions need to be reduced by 60 percent in less than a hundred years. When governments agree to be bound by such a target, the diminishing amount of carbon dioxide and other greenhouse gases that the world could release while staying within the target can be calculated for each year of the coming Century.”*

This is contraction. Convergence is that each year’s tranche of the global emissions budget gets shared out among the nations of the world so that every country converges on the same allocation per inhabitant by say 2030. Countries unable to manage within their allocation would, within limits, be able to buy the unused parts of the more frugal countries. This means, startlingly, just what it says. Over time, we converge on an equal share for every human being of the carbon dioxide and other greenhouse gases which it is judged safe for humanity as a whole to go on emitting. The global percentage reduction target and the date for reaching it are decided on the basis of our best scientifically informed estimate of what will give us the best chance of keeping now-inevitable global warming within survivable limits.

We then work towards meeting that target on the understanding that well before we do so, every country will be operating within an equitable national emissions allocation. This allocation will be equitable because it will depend only on national population, multiplied by the personal carbon budget on which we shall have converged for each global citizen. As within the suggested UK rationing scheme, trading around these national allocations is permissible, but the overall global emissions quota is firmly capped. A standard reaction among people encountering these proposals for the first time is to say, 'How hopelessly idealistic!' And such incredulity is perfectly understandable at first blush. Genuinely equal shares worldwide in a key resource equality not just in theory (high-sounding declarations of universal human rights and so forth), but in hard practice, to which the hitherto globally rich and dominant must conform themselves - and to a fixed timescale! Whose leg does he think he's pulling? But this response will not survive much careful reflection. For what, actually is the alternative? We have to turn the global-warming super-tanker around, if not quite on a sixpence then certainly within a very limited stretch of sea - and its currently lumbering momentum is powered increasingly by the burgeoning carbon emissions of hugely populous and ambitiously industrializing developing countries. Any chance which a C&C framework offers for halting this process will be greater than the chance of halting it within a global regime where the already developed nations continue trying to defend their own turf, their own historic claims to far more than their fair share of the planet's absorptive and regenerative capacities, because that chance is simply no chance. Whatever the pros and cons. from all the possible perspectives of real international equity in the past, the case for it now is irresistibly and urgently practical: "we must hang together, or we shall assuredly hang separately." No doubt it explains why endorsement for the principle, at any rate, of C&C has in fact been forthcoming from a good many quarters where one would expect brisk intolerance of mere hopeless idealism. These include the World Bank, the European Parliament and the UK Royal Commission on Environmental Pollution. The UN's Intergovernmental Panel on Climate Change has explicitly recognized the logic, and tile World Council of Churches has called for commitment to the framework. It would require impossibly high standards to regard all these bodies as lacking in seriousness. Together, the weight or their testimony, suggests that it is may be dismissing C&C as impracticable which is actually the unrealistic option. What all this means for a country like Britain is that we must act, at last, to redress the historic balance, through a much more generous development aid budget, but through making the break in this critical arena. That means setting ourselves a reducing carbon ration within assumptions compatible with global convergence and then offering decisive leadership in the international process which will be required for choreographing the actual introduction of the C&C framework worldwide. This a very demanding kind of engagement when compared with our current stance, but it is no less than a survival imperative. There is still a huge job to be done in campaigning and preparing for C&C, never mind in implementing it. The question for this book and this chapter, however is how all this relates to a deep-sustainability understanding of what we are about.

The Sustainability Mirage - John Foster

http://www.amazon.co.uk/Sustainability-Mirage-Illusion-Reality-Climate/dp/1844075354/ref=sr_1_fkmr0_1?ie=UTF8&qid=1322133808&sr=8-1-fkmr0



*Beyond international regulation of global finance, markets, and trade, new institutions are needed. These include a World Environment Organization to balance the narrow focus of the WTO and an International Bank for Environmental Settlements (as proposed by the UNDP) to manage the disputes and inequities arising from global climate change and to organize the '**Contraction & Convergence'** approach to equitable per capita emission rights in a trading system with deep liquidity for economic efficiency.*

ENVIRONMENTALISM & THE TECHNOLOGIES OF TOMORROW
Shaping the Next Industrial Revolution

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

Sustainable Energy
Edited by Klaus D. John, Dirk T. G. Rübbelke

http://www.amazon.co.uk/Sustainable-Routledge-Explorations-Environmental-Economics/dp/041556686X/ref=sr_1_22?s=books&ie=UTF8&qid=1300212978&sr=1-22#_

Otmar Edenhofer Transforming the global energy system:

As already pointed out, achieving deep emission reductions requires a comprehensible global effort which includes both a complete change in the energy supply of industrialised countries and the establishment of low-carbon systems in developing countries and emerging markets - In essence, nothing short of a full-scale transformation towards a carbon-free economic system. This would represent a true paradigm change compared with the current fossil-based energy systems and would take many decades to implement In order 10 achieve that goal, the emissions mitigation measures need to start immediately and rapidly engage the entire world (Edenhofer et al 01. 2009; Clarke el 01. 2009). In a common effort, industrialised countries have to use their scientific capacity and creativity to develop low carbon technologies and to prove that a high standard of living can be sustained with considerably lower emissions in order to facilitate an early adoption of these technologies in the fast-growing emerging markets. The ultimate goal is a global carbon-free society compatible with global equity aspects.

While a rather robust picture emerges with respect to the overall global costs of mitigation, significant uncertainty exists about the regional distribution of these costs. Figure 4.12 shows results obtained from the model comparison exercise RECIPE. As part of this project, three hybrid energy-economy-environment models were harmonised with respect to socio-economic drivers but represent very different visions of the energy system and how the low-carbon transition is employed. Four stylised burden-sharing models were considered:

*1. '**Contraction & Convergence'**, C&C (e.g. Global Commons Institute 2000), where allowance allocations are assumed to converge linearly from status quo to equal per capita in 2050;*
2. common but differentiated convergence (Hohne et al. 2006), a variant of the C&C scheme that envisages additional headroom for emissions growth III developing countries before switching towards a reduction trajectory;

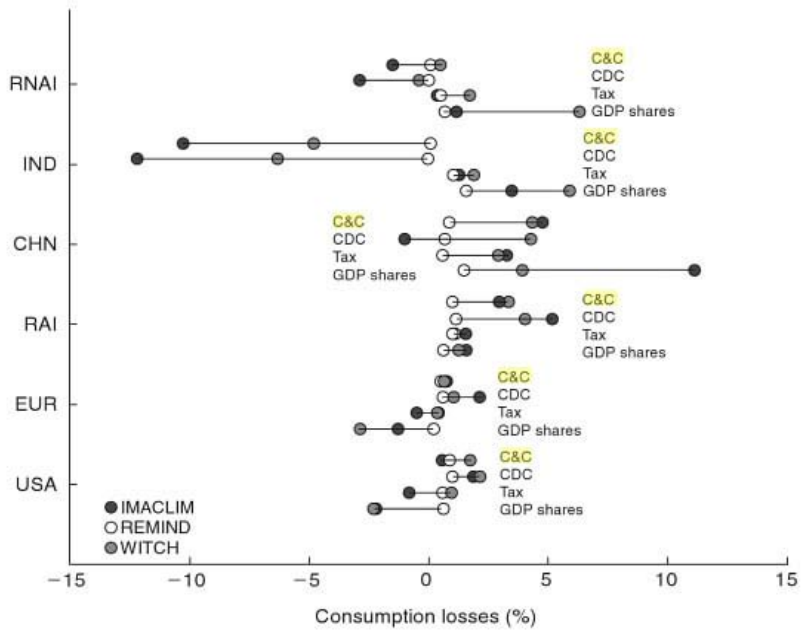


Figure 4.12 Distributional effects of various allocation schemes to achieve 450 ppm CO_2 only in terms of consumption losses for the models IMACLIM-R, REMIND-R and WITCH (RECIPE project, Luderer *et al.* 2009; Edenhofer *et al.* 2009).

Note
Percentage changes are given relative to baseline using a 3 per cent discount rate. The figure shows the ranges of consumption losses over the different models and regions which can be interpreted as uncertainty ranges.

3. a global uniform emission tax with national revenue recycling; and
4. an allocation of emission rights in proportion to GDP shares.

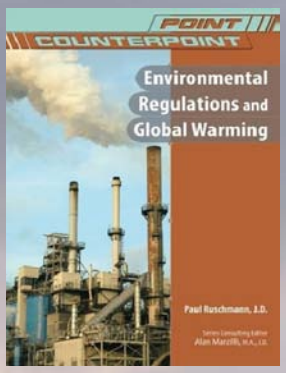
IMACLIM-R features a high sensitivity of mitigation costs to the allocation rule, particularly for India and China. WITCH provides a midway scenario in which regional domestic costs and transfers from emissions trading account for a significant share of economic activity mostly after 2030 and especially in the second half of the Century. In REMIND-R, mitigation costs are more evenly distributed across regions with smaller differences across allocation schemes.

Regional costs are smaller than the ones reported by the other two models with no region experiencing losses above 2 per cent. In general, mitigation cost expressed in percentage consumption losses exhibit a higher uncertainty across models and higher sensitivity to the allocation rule in lower-income countries than in the developed world. This effect is due to the fact that abatement costs and transfers from the carbon market account for a larger share of these countries' GDP. It is particularly evident for China and India. Policymakers should be aware of this uncertainty with respect to the regional distribution of mitigation costs. In a more in-depth analysis, Luderer at al. (2009) show, based on RECIPE data, that the differences between the models can be attributed to:

1.differences in the domestic costs of greenhouse gas abatement (due to different representations of the energy system)

2.effects related to shifts in trade volumes and prices of primary energy carriers (which, again, is represented differently III the three models), and

3.different financial transfers implied by the trade in emission rights



In 1990, a group of activists led by Aubrey Meyer founded the Global Commons Institute [GCI]. Its objective is to find a solution to global warming that is fair to all inhabitants of the Earth. The GCI presented its original agenda to the Second World Climate Conference in 1990.

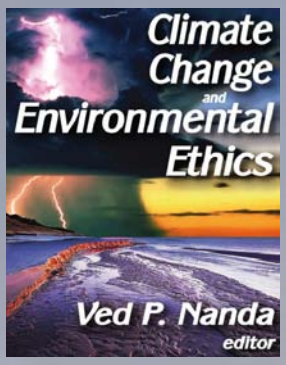
*Later, at the urging of the IPCC, it developed a plan that is now known as '**Contraction & Convergence'** (C&C). The goal of C&C is to reverse the current state of affairs in which industrialized countries account for a growing share of emissions. Developing countries suffer most of the effects of global warming and the two sides cannot agree on how to so solve the problem. A GCI publication,'**Contraction & Convergence'** A Global Solution to a Global Problem", states: -*

"Because everyone - regardless of status - is now increasingly vulnerable to the impacts of climate change, the rich have little choice but to share the burden of contraction fairly."

The Institute observed: -

"We consider that a failure to face and secure a global commitment of this kind will result in a perpetual stalemate in the international political process to the extent that the agreement and delivery of global abatement targets will become less and less possible."

Environmental Regulations & Global Warming Point/Counterpoint:
Issues in Contemporary American Society
Paul Ruschmann Alan Marzilli
http://www.amazon.co.uk/Environmental-Regulations-Warming-counterpoint-Counterpoint/dp/1604133325/ref=sr_1_1?ie=UTF8&s=books&qid=1306231222&sr=8-1



*Moreover, principles are also needed for the allocation and restriction of carbon emissions and the emission of carbon-equivalent gases. Whatever an acceptable level of greenhouse gases may be, it is difficult, if not impossible, to justify any human being having a greater entitlement than any other to emit these gases (the principle of equality). The fact that one's ancestors emitted more such gases before the theory of anthropogenic global warming came to light in the 1980s fails in my view to justify reducing this entitlement, since those emissions were discharged in ignorance and not known to take place at others' expense. Equally, the fact that the status quo and the current world economic system implicate much greater emissions for developed countries than this principle would recognize fails to justify these countries or their peoples retaining this differential, or being allowed differential entitlements. So, if countries are allowed to act and to exercise responsibilities on behalf of their populations, then the entitlements of countries should be proportional to their populations (as calculated at some agreed date). An international regime should, if so, be introduced to give effect to such entitlements, a regime that would authorize countries not using their full entitlement to trade the unused component with countries wishing to exceed their entitlement. This would clearly be a redistributive system, even if the acceptable total were to be steadily reduced to stabilize total emissions. This is the system of '**Contraction & Convergence'** proposed by Aubrey Meyer, and variously defended by Peter Singer, Dale Jamieson and myself (Meyer 2005; Singer 2002; Jamieson 2005; Attfield 2003, 179-181).*

*'**Contraction & Convergence'*** **and Equity** *How well does such a system accord with ethical theory, particularly if anthropocentrism and sentientism are to be rejected in favour of a more bio-centric approach? I want to tack le here some issues of two different kinds. First, there are issues of the consistency of the Contraction and Convergence approach with biocentrism, and its recognition of the importance of making proper provisions for nonhuman species. Secondly, there are issues relating to the difference made by biocentrism to what we should aim at in a global regime to cope with climate change and related issues. On the face of it, '**Contraction & Convergence'** could be accused of anthropocentrism, since the entitlements that it recognizes are for human beings and for them alone. This might almost seem like a human takeover of the atmosphere's absorptive capacities. Even though humans depend on a whole range of ecosystems, the functioning of which would have to be provided for, this recognition still seems to derive from human interests alone, and not to embody the least concern for other species. However, calculations of emission entitlements would need to take into account the normal functioning of ecosystems whether they benefit humanity or not. Thus the methane buried in temperate wetlands and in tundra has to be allowed for, since its emission is largely beyond human control. Admittedly, the mitigating of greenhouse gas emissions requires not exacerbating these emissions, but their lack of benefit to humanity does not mean that they can be disregarded or that their contribution to the proportion of carbon-equivalent gases in the atmosphere can or should be forgotten. Much the same applies to the emissions both of oxygen (welcome) and of carbon dioxide (less welcome) [rom tropical forests and from oceanic vegetation. These ecological processes are part of the background to issues about the shape of global climate agreements, and '**Contraction & Convergence'** has no tendency not to take them into account.*

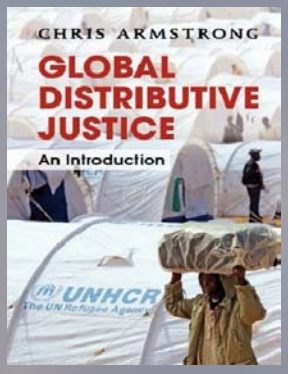
Much the same should be said about the emissions of wild animals, whether plentiful ones like bees and ants or rare ones like tigers and pandas. Some of these species are vital for human interests; among the species just mentioned, bees are the clearest example. However, even the kinds that are not, such as perhaps snakes and spiders, must be recognized as having their own patterns of ingestion and excretion, just like the trees, the plankton, and the seaweeds discussed implicitly in connection with forest and ocean ecosystems.

*Any attempt to appropriate or seize their ecological niches would be both arrogant and disastrous, except where, as pests, they need to be controlled to allow human food to be grown and stored. Biocentric theorists can welcome these necessities, where anthropocentric ones may regard them with resignation, but both kinds of theorist are free to support '**Contraction & Convergence'** in at least some of its varieties, for Contraction and Convergence has no tendency to colonize the entire surface of the planet in the cause of policing emissions. Besides, there are strong grounds for preserving wild species, and supporters of '**Contraction & Convergence'** whether anthropocentric or biocentric, have no need to disregard them. Where domestic animals are concerned, the situation is different, since their numbers, and to some degree, their kinds, are subject to human control. Accordingly, the emissions of such creatures arc to be regarded as part of the tally of human emissions. If, as it might, Contraction involves rearing fewer heads of livestock and fostering a more vegetarian diet, this possible implication would have to be carried through as part of the human responsibility. There would probably be other responsibilities to preserve the various domesticated species, if not the ir current populations, but such responsibilities could readily be reconciled with an agreed climate regimen. Maybe these responsibilities would focus on the good of our human successors, or maybe they would re late to possible future members of nonhuman kinds, and to their welfare. So far, then, I conclude that there is nothing objectionable about the way in which Contraction and Convergence focuses on human entitlements. There would be, if its advocates were to claim that non-bearers of these entitlements only ever carried instrumental value: but there is not the least requirement of rationality or consistency for them to say this. '**Contraction & Convergence'*** **and Biocentrism** *It is time to turn to the second kind of issue mentioned earlier, and to ask what difference non-anthropocentric kinds of environmental ethics make in matters of climate regimen s. So far, I have claimed that all kinds of theories of environmental ethics can support Contraction and Convergence in some fonn or other. But might sentientism and biocentrism make a difference as to which fonn is to be favored? In principle, they must make a difference, because they supplement the human interests to be considered with the interests of billions of sentient nonhumans, and in the case of biocentrism, non-sentient creatures in their trill ions. If we add to these interests the interests of future members of those species. their accumulated strength is vast. These interests would usually be added to the scales in favour of policies of mitigation, since in the absence of such policies, numerous species are at risk of extinction. Many of them species with a strong prospect of survival well beyond the eventual demise of humanity, unless they are eliminated in the near future. While some creatures would doubtless benefit from the demise or decimation of humanity, the ecosystems on which most wildlife depends could well be at risk if policies of mitigation are not adopted by human agents, or adopted too feebly or too late. Certainly there are human interests to be weighed against these policies, or which involve competition for resources. But in many cases, there would be ways of combining the policies of mitigation and adaptation with the policies that these interests support, such as policies of development, which could be combined with climate change policies, and in some cases enhanced by them. For example, during the first few decades of Contraction and Convergence, resources would flow to poor but populous countries that were not yet in a position to deploy their full emissions entitlement, and which might well decide to trade the unused component; such resources could be used both towards their own adaptation and for development. In practice, what is at issue concerns the emissions cuts needed to prevent a two-degree (Celsius) increase in temperatures above pre-Industrial Revolution averages. Conventional policies, for example, ones tolerating 450 ppm of carbon dioxide in the atmosphere, could allow this to happen, despite purporting to prevent it. Current levels are 380 ppm of carbon dioxide, plus 60 ppm of carbon-equivalent greenhouse gases.*

But to ensure that the two-degree increase is avoided, the total level of carbon plus carbon-equivalent gases would apparently need to fall to a total of 400 ppm (Monbiot, 2006, 15-17: Brown 2002; Baer, Athanasiou & Kartha 2007). With levels continuing to rise, attaining this level is likely to involve cuts that are both early and severe. From an anthropocentric perspective, the case for such early and severe cuts might seem less than secure, in view of losses to productivity and to the desirable attainments that productivity can support Here, then, it is of great importance that the ethical case not be confined to the limited scope of anthropocentrism. Sentientism strengthens the case to some degree, requiring agents to heed the difference that can be made to mammals, birds, and perhaps reptiles and fish . But a much greater difference is made when the interests of the non-sentient majority of creatures are added. I am not suggesting that government negotiators are likely to be impressed by the numbers involved. Relevant considerations are likelier to be the arrogance of disregarding both current non-human life, and the future of life on earth in genera l. Plausibly, biocentrism would justify reducing the atmospheric concentration of greenhouse gases to below 400 ppm of carbon plus carbon-equivalent gases; it certainly indicates this much more securely than sentientism and very much more securely than anthropocentrism. All these levels are, of course, consistent with one version of Contraction and Convergence or another, but they make a very large difference as to which version is adopted, and to which forms of energy-generation, production, travel, and transport are selected. Someone might here suggest that ecocentrism would sustain an even stronger case. Here, I beg to differ. For all the living creatures belonging to ecosystems have been included already within biocentrism, and the claim that ecosystems count for themselves independently of the creatures they sustain thus amounts to advocacy of double-counting. Certainly ecosystems are important, but their importance, I suggest, lies in the value of the creatures that they support and can continue to support, rather than in some independent value of their own. No doubt defenders of ecocentrism would claim to have a yet stronger case to present for emission reductions; my view, however, is that it is not a good case, and that environmental ethic ists should appeal to biocentrism instead.

Conclusion *It is, once again, of the greatest importance that not all kinds of theories of environmental ethics support the same policies; this kind of convergence view (Norton 199 1) is surely misguided. Biocentrism supports far stronger policies than anthropocentrism, however 'weak,' Aristotelian or enlightened and considerably stronger policies than sentientism. Since it is also a more grounded theory, these stronger policies should be adopted for that reason. Hence the best way to face climate change is to appeal 10 a renewcd environmental ethic of a non-anthropocentric, biocentric kind.*

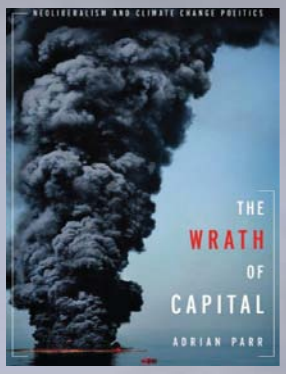
Climate Change & Environmental Ethics; Ved P Nanda http://books.google.co.uk/books?id=9AiAMsmBVpsC&pg=PA35&lpg=PA35&dq=%22Contraction+and+Convergence%22+%22Peter+Singer%22&source=bl&ots=_nUJ0mTcNj&sig=9f7Lta1rZbcWg3OS43x2rXa43UM&hl=en&sa=X&ei=DRHvTv3aGpLb8QPeo92aCg&sqi=2&ved=0CCgQ6AEwAQ#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false



"Essentially, we should conceive of the atmosphere as a global 'sink' into which we can pour a fixed amount of carbon dioxide before there are serious and irreversible effects on the climate. The question then becomes one of how to distribute rights to pour carbon into this 'sink'? If we begin by asking, "Why should anyone have a greater claim to part of the global atmospheric sink than any other?" then the first, and simplest response is: "No reason at all."

*In other words, everyone has the same claim to part of the atmospheric sink as everyone else. In practice this principle would lead to what ecologists call '**Contraction & Convergence'** whereby the emissions levels of different countries met or 'converged' at a fixed an equal level. The 'contraction' would apply to developed countries which would be obliged to cut their emissions very substantially."*

Global Distributive Justice Chris Armstrong
http://www.amazon.com/Global-Distributive-Justice-Chris-Armstrong/dp/1107401402/ref=sr_1_1?s=books&ie=UTF8&qid=1328353101&sr=1-1



*Similar to Singer's stabilization thesis and also in support of those who advocate emissions-trading schemes, the Global Commons Institute advances a '**Contraction & Convergence'** approach to the problem of global climate change. It, too, leans upon a historically constituted principle of social equity insofar as it aspires to narrow the gap between the wealthy and the poor. The theory aims to produce equal per capita emissions and favours emissions trading to get there. First, a figure for a safe level of global GHG emissions needs to be set. Second, these emissions would converge to form the basis of per capita quotas. The principle of socioeconomic distribution would come into effect in that wealthy countries would need to contract their emissions more than poorer countries. In addition, poor countries might initially be allowed to increase their emissions. From here, total global emissions would begin to contract.*

These arguments might not be perfect, but they do offer up a road map to cutting carbon emissions across the globe. Why, then, cannot the leaders of the world reach a consensus? The question is almost a naive one to ask because the answer is so obvious. Cutting carbon emissions will hurt the economy-that is, unless the economy can be tweaked in such a way that it capitalizes from climate change. Interestingly enough, the latter argument is gaining traction in the form of "climate capitalism.'

My use of the term climate capitalism is intended to be tongue in cheek. I am fully aware of how it is gaining popularity among scholars and policymakers who hope to put the mechanisms of capitalism to work in the service of decarbonizing the economy, but I disagree with them. As I say often in this book, capitalism appropriates limits to capital by placing them in the service of capital; in the process, it obscures the inequities, socioeconomic distortions, and violence that these limits expose, thereby continuing the cycle of endless economic growth that is achieved at the expense of more vulnerable entities and groups.

The Wrath of Capital: Neoliberalism and Climate Change Politics Adrian Parr http://books.google.co.uk/books?id=q5Zu25Ycd64C&pg=PA11&dq=%22Contraction+and+Convergence%22+Vulnerability&hl=en&sa=X&ei=enk7Ua_8GJDv0gWIpIGADQ&sqi=2&ved=0CFsQ6AEwCA#v=onepage&q=%22Contraction%20and%20Convergence%22%20&f=false

"Will doctors now take a lead on climate change?"

BMJ **EDITOR'S CHOICE**

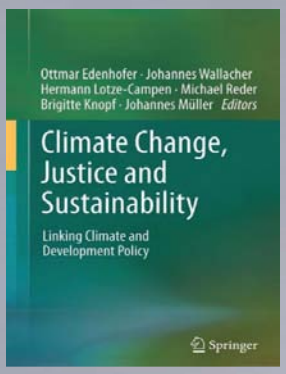
"I agree that a global policy of "C&C" offers the best hope."

Will doctors now take a lead on climate change?
Fiona Godlee editor, BMJ http://www.gci.org.uk/Documents/bmj.e2232.full.pdf

Last week was Climate Week in the UK, featuring a host of awareness raising activities across the country. And next Wednesday, 28 March, is NHS Sustainability Day. So it seems a good moment to be publishing our Spotlight on climate change. The seven articles have been specially commissioned from among the speakers at last year's high level conference on climate change, hosted by the BMJ inpartnership with a consortium of other organisations. In case there are any remaining doubters reading the BMJ, we begin with the science. "No science is ever completely settled," writes Chris Rapley. "However, among the tens of thousands of scientists working in the field of climate science worldwide there is almost complete agreement that our climate system is changing, and that human activities are the predominant driving force." Equally firmly agreed upon are the risks to health and life, summarised by Tony McMichael and colleagues—risks that are already realities for many of the world's more vulnerable people. What is less clear is how to reduce or even start to reverse the damage before it's too late. I agree with Robin Stott that a global policy of "contraction and convergence" offers the best hope for our future, addressing climate change and social inequity.

But the political will to achieve this remains elusive. Public engagement and greater efforts to convince politicians will be needed to keep climate change high on the political agenda when the problems of the global economy are so pressing. The question is, can we find a new economics that doesn't rely on environmentally catastrophic growth, and can we find it in time?

In his introduction to the Spotlight Tony Delamothe finds one ray of sunshine: that low carbon economies can improve health. In their article, Andy Haines and Carlos Dora explain that health professionals are uniquely placed to promote policies that are good for the planet and for people.



The Isolated Perspective

Although most proposals for allocation schemes are mixed regarding the ethical principles involved, different categories of allocation rules can be distinguished systematically with regard to their predominant underlying principle of justice. There are three prevalent types of allocation schemes within the political discourse that adopt a more isolated view, namely,

- *Equality*
- *Compensation of historical emissions,*
- *Grandfathering.*

- *GROUP (A): Equality - Probably the most high profile proposal of all is equal per capita allocation of emission rights (e.g. Agarwal and Narain 1991; WBGU 2009), which can be viewed in the tradition of liberal equality. It belongs to the isolated view of the allocative problem, because it is only concerned with equality in respect to emission rights, rather than other forms of wealth, goods, resources etc. Variations of this isolated idea of distributive equality are '**Contraction & Convergence**' [C&C] and most proposals that include historical emissions for reasons of distributive justice, such as C&C historical. They differ from the per capita proposal only in some temporal aspects of equal per capita emission rights (e.g. within each year, or within a life-span, or after some years of transition period, or equal average per capita emission rights within an entire nation since the beginning of industrialisation). Common to all allocations of group (A) is the idea of equal opportunities. Despite its intuitive appeal, some critique on this kind of allocation could be made (d. Caney 2009): More general critique on allocations of group (A) centres on liberal equality (e.g. by sufficiency-oriented theories. see Chap. 7). But even if one favours liberal equality and the isolated view, it is not clear why we aim for equality of emission rights because bearing emission rights as a resource endowment or as a property right cannot be ethically regarded as an end in itself (see Sect. 7.2 and Sen 1997). Why not aim for equality of some kind of benefits from emission rights, e.g. in terms of GDP or utility, or opportunities such as access to energy, or equality of benefits from emissions during a life-span (sec Sect. 7.4)? However, it is very difficult to definitely identify benefits and opportunities from emission rights, particularly from past emissions, or to implement concepts such as "during a life-span". Furthermore, it is hard to determine "equal access to energy" within the framework of an ETS, without at the same time rewarding the maintenance, or even provision, of undesirable incentives for creating high carbon intensity in the energy sector. A focus on equality of benefits from emissions in terms of GDP could even feed higher energy intensity in addition to higher carbon intensity. Note that such side effects and incentive structures have to be considered for every proposal for allocating emission allowances. From our perspective of justice (see Chap. 7), the most important aspect within an isolated view of permit allocation is not the focus on equal benefits in terms of GDP or equal access to energy. Rather, emission permits arc extremely, though not equally important resources for every society, insofar as they are required for fulfilling basic needs and for creating crucial economic opportunities for everyone (see Sect. 7.2). Thus, one*

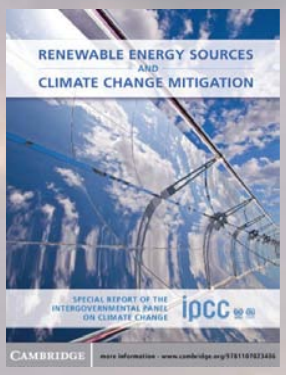
could argue for a per capita allocation, although the claim to equality in this case would be a mere means to roughly provide these claimed goods for everyone. Since it is very hard to practically determine regional differences, an equal allocation of emission permits among all regions seems a fairly good approximation. For these reasons per capita (or similar proposals) could serve as a just allocation as outlined in Part II if one accepts the isolated view. In addition, it leads to the positive side effect of gains for some poorer countries, which can support their development.

• GROUP (B): Compensating Historical Emissions - C&C Historical, the "Brazilian Proposal" (UNFCC 1997; La Rovere et a\. 2002) or the approach of "cumulative emissions per capita" from 1900 onwards (Ding et ill. 2009) seem to be based on the idea of compensation or retribution of wrongdoings rather than on ideas of distributive justice: they incorporate past emissions with regard to the damages they cause, or benefits from past emissions as immoral "free-riding" (See Sec1. 7 4). The ethical reasons for not taking past emissions into account in this way have already been presented in Sec1. 1.4.

• GROUP (C) Grandfathering - The principle of grandfathering, which is considerably in vogue in industrialised countries is implied in per GDP allocation, but weaker in CDC and C&C. It does not meet with the approval of the triangle of justice. since its mere focus on property rights and on keeping the status quo does not accord with the claims of the three dimensions of justice, particularly in regard 10 eradication of poverty. Caney (2009) states that no moral or political philosopher defends the principle of grand fathering.

The only ethically acceptable reason for a transition period from status quo to equal per capita allocation could be the protection of socio-economic systems in industrialised countries in order to secure basic needs fulfilment and sufficient opportunities. To achieve this, 2020 as convergence year should be adequate. Thus, if C&C for example, with its component of grandfathering, was pursued the year of convergence should be much earlier than 2050.

Climate Change, Justice and Sustainability:
Linking Climate and Development Policy
Ottmar Edenhofer, Johannes Wallacher, Hermann Lotze-Campen, Michael Reder, Brigitte Knopf, Johannes Muller
http://books.google.co.uk/books?id=epsmm-bhnqcC&pg=PA284&dq="Contraction+and+Convergence"+Emissions+Management&hl=en&sa=X&ei=beY5UerTJqnC7AaN0YGgDg&ved=0CGAQ6AEwBzgK#v=onepage&q=%22Convergence%22&f=false



RENEWABLE ENERGY & CLIMATE MITIGATION [IPCC]
http://www.gci.org.uk/Documents/SRREN_Full_Report_.pdf

This is the valuable and recently published IPCC Report Renewable Energy Resources& Climate Change Mitigation, is based on the: -

RECIPE REPORT - the Economics and de-carbonization
http://www.gci.org.uk/Documents/RECIPE_synthesis_report.pdf

Based in turn on C&C, this RECIPE Report [2009] says -
"C&C is the default policy scenario for the 450 and 410 scenarios."

*1) '**Contraction & Convergence'** (C&C).*

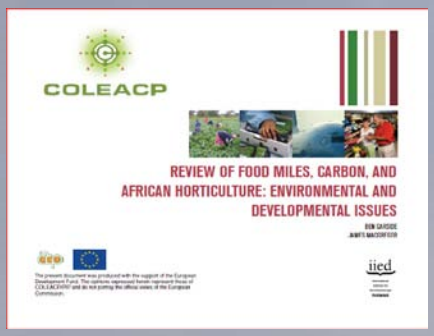
The C&C scheme (Meyer, 2004) envisages a smooth transition of emission shares from status quo (emissions in 2005) to equal per capita emissions in 2050.

It combines elements of grandfathering – allocation based on historic emissions – and equal per capita emissions.

It can thus be considered a compromise between a pure egalitarian regime and a grandfathering approach.

This is the scheme that was used in the default policy scenario and the 450 ppm scenario discussed above.

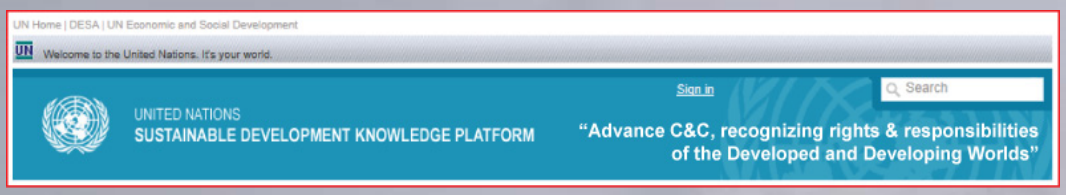
*Meyer, A. (2004): Briefing: '**Contraction & Convergence'** Engineering Sustainability (157). Issue 4, p. 189-192.*



*‘**Contraction & Convergence’** a proposed global framework for reducing greenhouse gas emissions to combat climate change.*

*Conceived by the Global Commons Institute in the early 1990’s, the ‘**Contraction & Convergence’** strategy consists of reducing overall emissions of greenhouse gases to a safe level, ‘Contraction’, where the global emissions are reduced because every country brings emissions per capita to a level which is equal for all countries, ‘**Contraction & Convergence’.***

COLEACP - Review of food miles, carbon, and African horticulture: environmental and developmental issues
Ben Garside James MacGregor Bill Vorley
http://www.gci.org.uk/Documents/PIP.pdf



Population and Sustainability Network

http://www.populationandsustainability.org/49/background-amp-concept/background-concept-of-the-network.html

PSN is an international network bringing together development, environment and reproductive health organisations, government departments and policy research organisations to clarify and increase awareness of the importance for sustainable development of both population and consumption factors.

PSN’s mission is:

To increase the prominence of population dynamics within the agendas of governments, policy research bodies and NGOs (development and environment) in order to increase support for and investment in voluntary family planning and reproductive health services that respect and protect rights as part of existing development priorities, including maternal health (MDG 5) and the protection of the environment (MDG 7), and emerging priorities, such as climate change and fragile states.

PSN aims: -

• To highlight the negative impact of rapid population increase on economic development, poverty alleviation and the natural environment, work to remove barriers that inhibit discussion and action on population matters and promote greater awareness of the importance of population planning among policy makers, media and the general public.

• To promote the adequate provision of reproductive healthcare facilities and education for the 215 million women and their partners who want to avoid pregnancy but do not have access to modern contraceptives, often because of non-availability of family planning services.

• To encourage better understanding of the problems caused by unsustainable consumption (particularly in the rich minority world) - especially as they relate to climate change, pressure on finite resources and biodiversity.

• The Network was established to promote discussion and collaboration on population and consumption issues, particularly with reference to the following shared concerns and aims of members:

• Insufficient attention awarded to the negative impact of population increase upon poverty alleviation and socio-economic development in the global South, and the global environmental consequences of un-sustainable patterns of consumption by the global North.

• Lack of realisation of women's rights to plan and space their pregnancies as they choose.

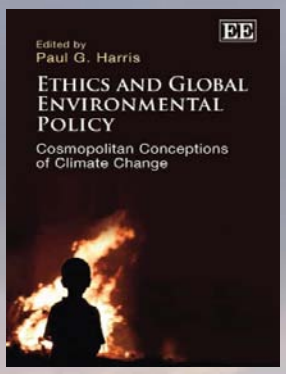
• The multiple barriers women and couples face in accessing voluntary family planning services, including: lack of political support for and investment in reproductive health programmes, lack of education and information about family planning options, and social and cultural barriers, including gender inequalities and religious barriers.

• To overcome the silence on population issues and the association of population issues with coercive population control of the 60s and 70s, by advancing voluntary, rights-based family planning programmes.

• To address the complexities and sensitivities obstructing constructive, integrated dialogue on population and consumption issues in relation to global sustainability.

• Lack of collaboration on inter-related population and consumption issues amongst the reproductive health, development and environment sectors.

*• Promote increased understanding of the links between population and climate change and advance approaches, such as '**Contraction & Convergence'** which mirror the PSN Population Consumption Coin concept by recognizing the twin rights and responsibilities of the developed and developing worlds.*



If effective international cooperation to address climate change is to be realized, how important is it to allow for a variety of pragmatic principles, such as precaution, "contraction and convergence" and "polluter pays", and how significant are ethical principles that different individuals and groups can accept? What is the nature and extent of the obligations of individuals with respect to climate change, particularly those whose lifestyles are carbon-intensive here and now - prior to any changes in laws, regulations, economic incentives or social expectations? And what is the relevance of those individual obligations for the likelihood and legitimacy of government politics for addressing climate change?

The Priority of National Policies and International Agreements

Much discussion about climate change ethics is conducted in what may be called an "internationalist" context. It is about nation-states (which I shall call states), and what states have contributed in the past to emissions, what their contribution is now, what each state should do, what international agreements need to be made, what principles ought to guide these agreements and so on. The rationale is partly cosmopolitan in that at least some of the drive to reach agreements to cut GHG emissions arises from concern for the long-term prospects for living conditions of human beings anywhere. (Of course there are other motives as well, not least concern for the future wellbeing of people within one's own state.)

*Much attention is devoted to identifying ethical principles, sometimes stated as principles of global justice, for determining what each state should do, and to pragmatic principles that could be the basis for agreements, such as '**Contraction & Convergence'**.*

Ethic and Global Environmental Policy
Editor Paul Harris
http://books.google.co.uk/books?id=LUIoJO9JD7QC&pg=PA13&dq=%22Contraction+and+Convergence%22+precaution&hl=en&sa=X&ei=2R01UarYNOWm0AWBhICwCw&ved=0CGcQ6AEwCQ#v=onepage&q=%22Contraction%20and%20Convergence%22%20&f=false

planetary boundaries initiative

Economics & Planetary Boundaries
Victor Anderson, Senior Policy Officer
Green Economy, WWF-UK

Econmics and Planetary Boundaries
Victor Anderson, Snr Policy Officer, Green Economy, WWF-UK

"Planetary boundaries" analysis originated in the science community, but it is such a powerful picture that it is rapidly drawing interest from people involved in politics, campaigning, law, and business.

But potentially the most interesting connection is with economics. This is because "planetary boundaries" can be seen as a way of pinning down the idea of "environmental limits". Economists have discussed the possibility of such limits, for a long time now – the best-known contribution to this debate being 'The Limits to Growth' study, published 40 years ago. However economists, being economists, have generally tended to conceptualise any such environmental limits in economic terms.

For example, the view has arisen that taking limits seriously means that total world GDP (Gross Domestic Product) cannot (or should not) be allowed to grow beyond a certain point, either because that is impossible or at least unsustainable, or perhaps sustainable but undesirable because of various costs necessarily involved.

However the "planetary boundaries" analysis does not have a maximum value for world GDP as one of the boundaries. It doesn't look to economic measurements to provide a definition of where the environmental limits lie. It looks to physical, biological, natural science measurements. So long as economic activity can fit within those, it lies within the limits, whatever the level of total GDP. GDP measures the sum of what is bought and sold, and its ecological impacts vary enormously, depending on what it is that is being bought and sold. So GDP figures are not a good way of getting at where the limits lie.

But that is not the end of the story. Economics and planetary boundaries can be brought together in a number of other ways.

*One is the possibility of a general principle of '**Contraction & Convergence'** . This concept has been discussed in the climate talks. It appears to be the only principle which combines sustainability ("contraction" of the total) with equity ("convergence" in the distribution). There are of course issues about the time period over which the convergence would take place, and about how each country would keep its activities within its allocated total.*

However the key point here in relation to planetary boundaries is that there is no reason to apply this principle only to climate and greenhouse gas emissions. If there really are planetary boundaries, then "contraction and convergence" ought to apply to everything which has a boundary, particularly those where the boundary has already been crossed or where we are rapidly heading in that direction.

Whilst lawyers can imagine the general form of treaties to keep the world within the planet's boundaries, there is a role for economics in analysing the ways in which such treaties could divide up the total world "cake".

That in turns open up questions about how governments can devise policy instruments which keep their country within its allocated share (which might be economic instruments such as permit trading) and questions about the knock-on consequences of such a regime, which would be largely economic and might include, for example, more expensive nitrogen- and phosphorus- based fertilisers. All this in turn would have distributional impacts, i.e. different impacts on different income groups, and raise questions about how to compensate for those in order to ensure that the poor do not yet again lose out.

All this is easy to shy away from on the grounds of political unacceptability and/or remoteness from current short-term political debate. But the "planetary boundaries" picture puts all this on the agenda, because if there really are planetary boundaries, the policy response needs to be pretty radical and far-reaching, even if arrived at gradually and with its implications being tested out every step of the way. This opens up the debate, for example, about whether some form of rationing would be fairer than a permit trading system.

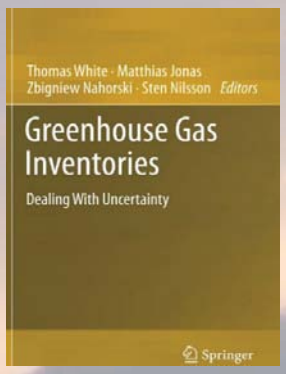
Another economic angle on planetary boundaries concerns the current drive for economic "valuation" of "natural capital". Without going into all the issues this raises, such as whether "capital" is really the right word or just a misleading metaphor, one question is whether the existence of boundaries should change the monetary valuation figures arrived at.

What is clearly ruled out is valuations based on "willingness to pay" or "willingness to accept compensation", because those approaches depend on aggregating the preferences of individuals, and there is absolutely no guarantee that the values arrived at in that way will correspond to, or keep within, total levels which are sustainable.

Working the problem from the other end of the logic, we could say instead that the values arrived at need to be those which, if acted on in decision-making, would keep the world within the boundaries. If keeping within the boundaries is to be achieved through the price mechanism, for example, by using taxes and "subsidies", then the prices and "values" used need to be high enough to keep the world within the boundaries, not simply arrived at through investigating individual preferences.

Almost any valuation is going to be better in its consequences than the current implicit value of zero, based on the assumption that ecological resources are essentially unlimited. But to get the values anywhere near "right", planetary boundaries would need to be brought into the equations.

Economics with no basis in the scientific reality of the natural world is highly dangerous, and too much of economics remains in that sense an autonomous subject. The economics of planetary boundaries offers an opportunity to anchor the study of the economy back into the real world.



*This situation would be different if the non-uniformity of the emission limitation or reduction commitments were the outcome of a rigorously based process resulting in a straight forward rule that applies equally to all countries, as would be the case, for instance, under the widely discussed '**Contraction & Convergence'** (C&C) approach.*

Greenhouse Gas Inventories - Dealing with Uncertainty
Tomas White, Matthias Jonas Zbigniew Nahorski, Sten Nilsson
http://books.google.co.uk/books?id=jfNFYeWVxhQC&pg=PA175&dq=%22Contraction+and+Convergence%22+compliance&hl=en&sa=X&ei=F640UZrBLOLT0QXN_IHIBw&ved=0CF0Q6AEwBg#v=onepage&q=%22Contraction%20and%20

Partnership with Resource Cap Coalition

14 Aug 2012

As partner of the Resource Cap Coalition (RCC) - an open platform for organisations advocating for a global resource cap - PAN Parks Foundation is promoting its aim of halting biodiversity loss and maintaining, as well as recovering ecosystem services, which underpin human wellbeing.

The RCC was initiated by ANPED, CEEweb for Biodiversity and Ecologistas en Acción in 2010. It lobbies for introducing a resource cap with a view to ensure social justice and staying within the earth's carrying capacity. It also provides a discussion platform for elaborating appropriate tools to realise its aims.

Why do we need to cap our resource use?

During the whole life cycle of associated goods and services, resource use poses growing pressure on the Earth's ecosystems. This in turn diminishes their ability to provide services such as climate regulation, food provision and water purification, which underpin all economic and social processes. Thus our livelihood, cultural heritage and human well-being on the whole are more and more threatened. Resource extraction is also contributing to biodiversity loss, which is at present time between 100-1000 times higher than its natural course.

Industrial economies, such as the European Union, use much more resources than their fair share, and thus they play a major role in degrading the planet's environment. Moreover, most fossil fuels, minerals, and biomass consumed in Europe are extracted in other countries. Hence the EU owes an "ecological debt" to impoverished countries for the use of their resources and ecological space.

*According to the International Resource Panel, absolute reduction of resource use on a global level is necessary to make progress towards a sustainable economy. Under a tough '**Contraction & Convergence'** scenario industrialized countries should reduce their per capita resource use (average metabolic rate) by 66-80%, while 10–20% reduction in developing (non-industrialized) countries would be also need. Such a scenario, which in fact would only mean going back to levels of global resource consumption in 2000, would be consistent, in terms of carbon per capita, with the IPPC recommendation to keep global warming below 2ºC.*

Why current policy responses are insufficient?

Policy efforts addressing resource use only focus on achieving higher efficiency. Nevertheless, this will not solve by itself the present and oncoming scarcity and the accompanying social and environmental problems. Economic growth will relentlessly outstrip those gains, meaning a total rise in resource use. Political decisions must deal with the so-called rebound effect when they target resource efficiency in order to clamp down on overall resource depletion.

The RCC's proposal

We need to set a cap on the use of resources including all types of raw materials if we want to effectively bring down their consumption in the EU and refit our economy inside its ecological space.

What principles should guide such a cap?

The aim of the RCC is halting biodiversity loss and maintaining, as well as recovering ecosystem services which underpin human wellbeing

Resource cap should:

- *aim to realise an absolute reduction in resource use,*
- *be progressively lowered year after year*
- *be based on an interdisciplinary analysis including sound scientific information and a social debate applying bottom-up approaches as far as possible,*
- *be defined through clear indicators and transparency of information,*
- *be underpinned by clear rules and strong public support, monitoring and enforcement,*
- *transform the production and consumption patterns in favor of products and services with low input,*
- *contribute to re-localizing the economy with shorter economic cycles, higher self-sufficiency, higher adaptation to local availability of resources and less transport needs,*
- *fully consider environmental justice and ecological debt (from the North to the South) caused by centuries of social and economic exploitation,*
- *take into account the social concerns so that the poor, vulnerable and marginalized benefit from it,*
- *better balance the share of human labour and machine labour,*
- *be accompanied by complementary measures (effective regulation of pollution and land use, taxation, basic access warranties, etc.)*
- *not allow any financial speculation within the new structure of resource scarcity.*

The Resource Cap Coalition is advocating for an overarching regulatory framework that can reach different objectives. This should include the following tools:

Non-renewable energy quota system

The proposed scheme aims to set a cap on non-renewable energy use at EU level based on present use rates. The cap would be lowered progressively year by year. Quotas per capita and per sector are assigned with the involvement of all stakeholders. Quota savings can be sold for interest free "quota money", which can be spent in an environmentally and socially certified market.

Rimini Protocol- An Oil Depletion Protocol

This protocol proposes to limit the national rate of extraction and consumption to the current national (NDR) and global depletion rate (GDR) respectively, depending on whether a particular country is an oil importer or exporter.

More details can be found at www.ceeweb.org/rcc

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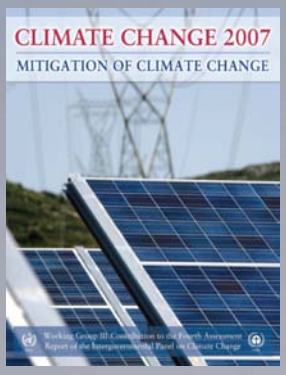
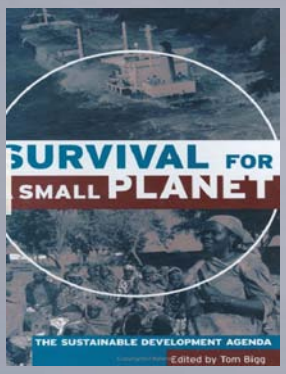


A number of scenario studies have been conducted for various countries within Europe. These studies explore a wide range of emission caps, taking into account local circumstances and potentials for technology implementation.

*Many of these studies have used specific burden-sharing allocation schemes, such as the '**Contraction & Convergence'** (C&C) approach (GCI, 2005) for calculating the allocation of worldwide emissions to estimate national emissions ceilings.*

IPCC AR4 - Climate Change 2007 Mitigation of Climate Change
http://www.gci.org.uk/Documents/ar4_wg3_full_report.pdf



*One potentially useful approach - although by no means without its own complications - is to move towards per capita emission targets and a **'Contraction & Convergence'** policy scenario aimed at atmospheric stabilization in the post-Kyoto phase.*

Even if such targets are 'adjusted' on some mutually accepted bases (for example, economic output per unit of carbon, climatic zones, population density, etc) they could lead to a more transparent and predictable regime that sends clear signals to all countries about the type of behaviour that would reduce the regulatory burden on them over time. Moreover, such targets could be applied to all countries, North and South, thereby responding to the US demand that all countries be treated equally by doing away with the 'class' structure of the current regime. Instead of a convoluted system of arbitrary percentage cuts for different countries, having a standard global emissions budget linked directly to atmospheric stabilization would not only be more elegant and equitable but also more manageable in the long term. Indeed, such a system could be a first step towards a more meaningful clustering of related agreements around a broader regime for all issues related 10 the atmospheric commons.

The ESM assesses whether these assets are fairly shared out between and within generations. It combines estimates of critical natural capital stocks (eg timber, water, land, ores) and the tolerance limits (eg regeneration rate, sink capacity) of ecosystems in order to set equitable (per capita) shares for development in the present. Similarly, fair shares of future stocks and tolerance limits arc worked out, based on future population estimates, and assigned for future generation use.

*ESM enables policy-makers to set environmentally sustainable and equitable resource use and pollution load targets, for individual nations 10 achieve as they see fit, on a sector-by-sector basis over determined periods: for example, to reduce carbon emissions b)' an estimated 60-80 per cent on 1990 levels by 2050, with each nation progressively moving towards its fair share emission rate, and using legal standards and fiscal policy to do so. ESM is an essential prerequisite to make the so-called '**Contraction & Convergence'** approach, now attracting the attention of Climate Convention delegations, viable.*

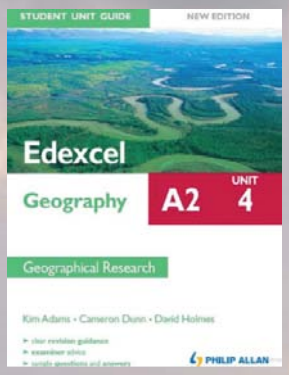
Survival for a Small Planet
Edited by Tom Bigg
http://www.amazon.com/dp/184407076X/ref=rdr_ext_tmb#reader_184407076X

There is as yet however, no global green movement. Environmental conflicts in the south are bound up with the degree of democracy and repression and the opportunities for mobilisation differ considerably. In countries such as India with a strong democratic system there is more space for environmental activism, and in Latin America, community-based environmental conflicts have been an important motor of democratisation (Foweraker 1995). But, in most countries in the south where they exist at all EMOs are small, and grassroots struggles against the environmental effects of development isolated and often repressed violently. Most transnational networking still depends on the greater resources of northern EMOs and activists.

The green movement as analysed in this book is very much a product of western structures and culture. There are points of connection and common interest between western greens and radical environmentalists in the south, but also major differences of context and tradition. More certain is that the agendas of western greens and non-western environmentalists will continue to change as a result of mutual contacts and engagement with global ecological governance. Although they have long been committed to seeking global solutions, the main challenge faced by radical environmentalists is how to build an argument that combines social justice in a form that is acceptable and persuasive in both north and south.

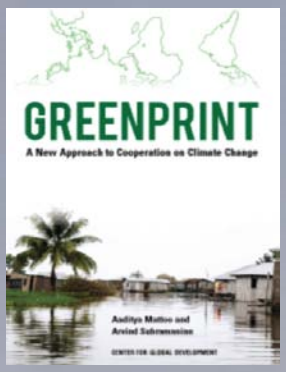
*Ideas such as **'Contraction & Convergence'** developed by the Global Commons Institute, in order to seek a means of furthering international agreement on climate change, have widespread support in the green movement. Contraction and convergence is based on the idea that the western countries need to reduce their emissions of greenhouse gases in order that non-western countries can expand economically, but this redistribution must occur within a framework compatible with sustainability. Through this and similar ideas such as that of 'environmental space' which, as the Danish group NOAH puts it, means 'that every person in the world has the right (but not the duty) to use the same amount of natural resources and produce the same amount of pollution and 'ecological debt', according to which the West owes other countries for the greater ecological damage it has produced, the greens are seeking ways to develop the arguments for global ecological solutions alongside a recognition of the need for the west to reduce its consumption.*

Ideas and Actions in the Green Movement By Brian Doherty
http://books.google.co.uk/books?id=gdS1oci1YAQC&printsec=frontcover#v=onepage&q&f=false



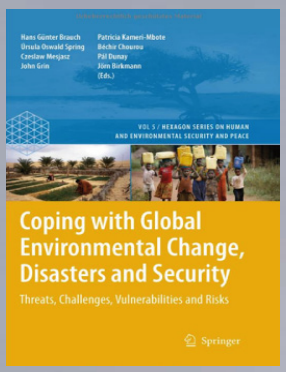
*The Resource Conservation ethic focuses on the greatest use of the resources of an area for the greatest number of people for the longest time. Exploitation of resources is reduced or not allowed. This has sustainability at its core, and is followed by most Westernised governments since the 1992 Rio Summit This includes the concepts of Polluter Pays, Precautionary Principle, Local Agenda 21, and most recently **'Contraction & Convergence'** as part of tackling the pressing issues associated with Climate change management. It also tries to involve all the stakeholders in an area and create a working relationship between nature and people. Investigate the growing demands of countries like China and poorer developing countries on global resources. Examine the conflicts between environmentalism and consumption by finding out how Contraction and Convergence could help reduce ecological footprints.*

Edexcel A2 Geography Student Unit Guide New Edition: Unit 4 David Holmes, Kim Adams
http://books.google.co.uk/books?id=d9mFoFB3_CMC&printsec=frontcover#v=onepage&q&f=false



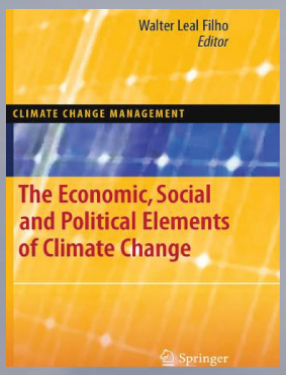
*It is worth noting here that the Stern (2007) and UNDP (2008) proposals are very close in spirit to the '**Contraction & Convergence'** ideas first proposed by Meyer (2000), which involves the global carbon budget contracting consistent with climate change goals, with rich countries converging down, and poor countries converging up, to a common emissions per capita target in the long run.*

GREENPRINT - New Approach to Climate Cooperation
Aaditya Mattoo Arvind Subramanian
http://www.cgdev.org/publication/9781933286679-greenprint-new-approach-cooperation-climate-change



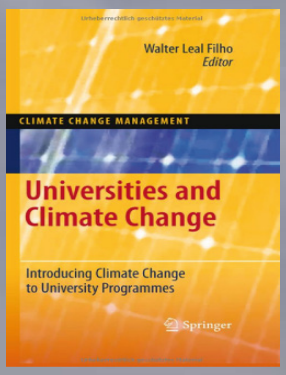
*Another approach focuses on the per capita emissions. Although currently the figures on emissions per capita differ between developed and developing countries, this approach dictates that they should he equalized eventually. This approach stems from the idea that the Earth's atmosphere is a global commons and all humans are equally entitled to use it. An approach called '**Contraction & Convergence'** (C&C) represents this approach, although some variations exist. In this approach, countries commit to converge their per capita emissions in a certain year, such as 2050 or 2100, towards which the global emission profile contracts. Future projections of population and emissions depend on the path drawn and therefore any calculation inevitably contains uncertainty, but these data are rather popularly used and well developed compared to other data. The majority of countries from the G-77 & China, and e.g. also Switzerland, support C&C as an allocation criterion in the negotiations.*

Coping with Global Environmental Change, Disasters & Security
Gunther Brauch et al
http://books.google.co.uk/books?id=v-9h-mXLaWQC&pg=PA1770&dq=%22Contraction+and+Convergence%22+Security&hl=en&sa=X&ei=GekxUYiDI8Sn0AXgi4H4Dg&ved=0CGYQ6AEwCTge#v=onepage&q&f=false



*Proponents of '**Contraction & Convergence'** (Global Commons Institute 2009) argue that, as the world is forced to contract its use of fossil fuels, the west should have to contract more in order to converge at a common global per cap emission rate. "Accelerating convergence to equal shares per head, relative to the global rate of contraction is the constitutional way of solving the climate's opportunity-cost to developing countries while sharing future constraint at rates that avoid dangerous climate change".*

The Economic, Social and Political Elements of Climate Change-
By Walter Leal Filho
http://books.google.co.uk/books?id=lvHWM1GwW8AC&pg=PA181&dq="Contraction+and+Convergence"+Danger&hl=en&sa=X&ei=VLcxUfS6OcWj0QWMyIDYDQ&ved=0CC8Q6AEwADgU#v=onepage&q=%22Contraction%20and%20Convergence%22%20&f=false



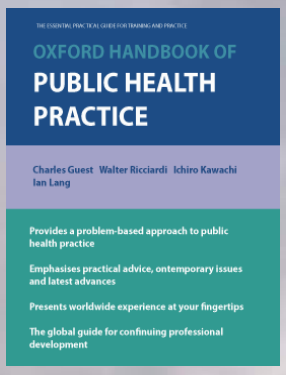
*"Perhaps the most interesting lessons for the authors came from being involved in a very small-scale version of the type of negotiations that are taking place internationally as nations try to agree on global emission reduction targets. Although there were only five organizations involved, the negotiations mirrored the international negotiations in many ways. The participants sought an equitable distribution of the burden of climate change response, while arguing for their own special circumstances and the need for differentiation of targets to take these circumstances into account. It is interesting, though perhaps not surprising, that a '**Contraction & Convergence'** approach emerged as the only equitable way to provide differentiation of targets across the participants. Some authors (e.g. Garnaut 2008; Singer 2006) believe that such an approach is the only way to achieve a successful equitable outcome in international negotiations on climate change response and the ATN experience supports this conclusion. However, the key factor that allowed this approach to succeed in the ATN was the commitment of all parties to the ATN partnership and its spirit of collaboration. A similar spirit is sorely needed in international negotiations on climate change response." '**Contraction & Convergence'** - A Global Solution to a Global Problem*

Universities and Climate Change Chris Riedy and Jane Daly -
Walter Leal Filho [Editor]
http://www.amazon.co.uk/Universities-Climate-Change-Introducing-University/dp/3642107508/ref=sr_1_10?s=books&ie=UTF8&qid=1288158874&sr=1-10#noop

Carbon as Public Policy - Contraction and Convergence

*'**Contraction & Convergence'** the framework for the reduction of GHG emissions was proposed in 1990 by the Global Commons Institute and developed by Aubrey Meyer. He has since received support from several governments, NGOs and international organizations like the World Bank and the IPCC, which considers both essential basic principles to organize the fight against climate change.*

Eco Fiscalite Séverine Frère, Helga-Jane Scarwell
http://books.google.co.uk/books?id=uBXP3XfF7GQC&pg=PA164&dq=%22Contraction+and+Convergence%22&hl=en&sa=X&ei=Y7HyTtPwA8bL8QOUn_nWAQ&ved=0CD8Q6AEwADgU#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false



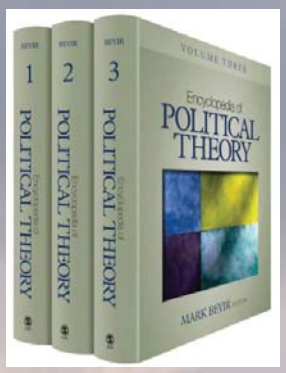
Three levels or health co-benefits from addressing sustainability and climate change:

• For populations: more physical activity, better diet, improved mental health, less road trauma, less air pollution, less obesity/heart disease cancer, greater social inclusion.

•For patients and the health care system: more prevention, care closer to home, more empowered I self-care, better use of drugs, better use of information and IT. Better skill mix, better models of care.

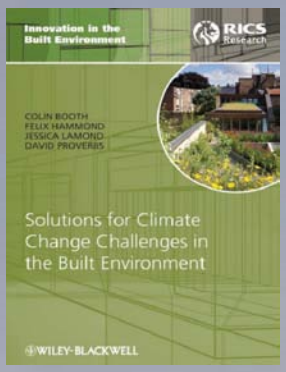
*•For people in poorer and less resilient societies: the adoption of economic systems such as '**Contraction & Convergence'** that distribute resources (such as carbon credits) equitably amongst the world's populations.*

OXFORD HANDBOOK OF PUBLIC HEALTH PRACTICE THE ESSENTIAL PRACTICAL GUIDE FOR TRAINING AND PRACTICE
http://books.google.co.uk/books?id=SntpYymGuzUC&pg=PA552&dq=”Contraction+and+Convergence”+Danger&hl=en&sa=X&ei=G7AxUdyTLsqa0QXUoYGQBw&ved=0CC8Q6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22%20Danger&f=false



*Consider the following choice between two international approaches to manage the risks posed by global climate change. The example is hypothetical but draws to a certain extent on recent debates concerning the appropriate successor to the Kyoto Protocol after it expires in 2012. The first approach, "Business as Usual," sets voluntary targets on carbon emissions with the goal of reducing the carbon intensity but not the overall emissions, of participating states. '**Contraction & Convergence'** by contrast, aims to secure each existing and future person's fair share of the absorptive capacity of the atmosphere by establishing a global safe ceiling for greenhouse gas emissions and distributing the burdens of remaining below this level according to a fairly negotiated allocation procedure. The predictable consequence of choosing '**Contraction & Convergence'** over its rival would be that, after a Century or so, the quality of life enjoyed by the average world citizen would be significantly higher. Would it not be wrong to adopt Business-as-Usual under these circumstances on grounds of intergenerational justice? An important environmental citizenship obligation would be to ensure that one's ecological footprint is not excessive and ideally is no bigger than that which could be enjoyed by all other human inhabitants of the planet (the Kantian sources of this view are evident here) such that we take merely our own share of ecological resources and do not invade the shares of others. This obligation would provide a strong stimulus toward '**Contraction & Convergence'** whereby citizens in the Developed World reduce their ecological impact to a level that could be enjoyed by all, and as a result, their footprint converges with those of people in less developed countries, whose share is allowed to expand to the same level. This view of citizenship inevitably draws on a cosmopolitan view of that concept: We have obligations of citizenship not only to those with whom we share a nation-state but to all people of the world.*

Encyclopedia of Political Theory
http://books.google.co.uk/books?id=gryvMfjg-zEC&pg=PA706&dq=%22Contraction+and+Convergence%22+Legislation&hl=en&sa=X&ei=_A0xUZrODaHW0QW7voCIAg&ved=0CEkQ6AEwBDgo#v=onepage&q=%22Contraction%20and%20Convergence%22%20&f=false



The first thing that could be done which would solve many of the issues is to educate women - as they tend 10 educate their children (Kennet, 2009) and, secondly, to create a huge push towards "Contraction and Convergence" would mean that the world's larger economies would contract so (they would not consume as much and the world's poorest economies would be allowed and managed to increase. So there would be a convergence of levels both of economy and also of a climate inducing carbon footprint, eventually for equality. This was considered a radical idea when first proposed by Greens. However, today, the Stern team (Stern, 2009) is arguing that we need the fastest period of growth the world has ever seen in order to pay for the technical developments we need to meet the climate change imperative. In fact, they argue that such growth will peak around 2030. This greatly enhanced growth looks increasingly unlikely to occur given the current economic downturn. Considering with the last 50 years of 'high mass consumption of goods' (ROSIOW, 1960) and the artificially created demand through advertising, what has happened is an exhaustion of the world's resources and still one fifth of humanity is poor and hungry. A recipe of more of the same - and greater and accelerated growth and even more resource consumption and high markets - has led us to the state of massive debt that could take a generation to fix. Stem's (2009) high-market growth solution does not look attractive or viable, and this time we don't have time to experiment.

If we are to mitigate the effects of climate change, we need a rapid reduction in our prodution of greenhouse gases. Through the IPCC, attempts are being made to do this (e,g. Copenhagcn 2009 and Kyoto 1997). Unfortunately, such reductions only include the developed world and the targets set have been small compared to what the climate science indicates is needed.

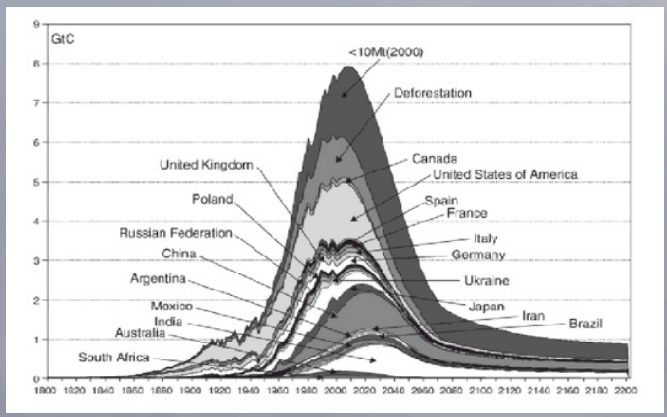
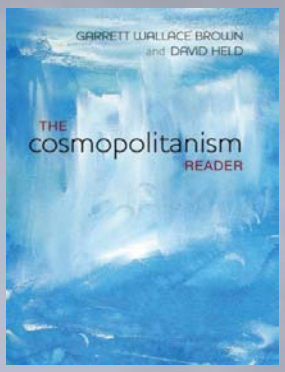


*Figure 23.1 shows the scale of the problem with most developed countries needing to cut their emissions by 80% or more. Figure 23 .1 was created under the assumptions of '**Contraction & Convergence'**. This approach starts by setting a maximum safe atmospheric concentration for carbon dioxide, then estimates what level of global emissions gives rise to this, then apportions this to each country based on its population. Countries that currently produce more than this (largely the developed world) can buy the right to emit more from those that emit less than their quota (largely the developing world). Over time the total right to emit would be reduced until the safe level of emissions is reached Contraction and Convergence is seen by many as the only ethically sound way of selling reduction targets that have a reasonable chance of gaining support from the world community.*

*In order to make the required reductions we will have to simultaneously reduce the amount of energy we use to achieve a set goal (e.g. keeping a building at a particular temperature), and decarbonise our energy production (i.e. increase the use of renewable energy). In the following we look at the plethora of renewable sources we can access. In Chapter 13 we saw how emissions can be reduced through energy efficiency, or the climate directly engineered. Chapter 13 also presented one of many possible combinations of changes to our energy supply that has the potential to make major carbon savings, together with an example abatement curve. Figure 23.1 '**Contraction & Convergence'** time series (produced with software freely available from the Global Commons website).*

Solutions for Climate Challenges in the Built Environment
C Booth, F N. Hammond, J Lamond, D G. Proverbs
http://books.google.co.uk/books?id=YL5PZ4ySmjkC&printsec=frontcover&dq='contraction+and+convergence'&hl=en&sa=X&ei=Pm8cT-78G6H24QTu4s3BBQ&ved=0CDoQ6AEwAA#v=onepage&q='contraction%20and%20convergence'&f=false

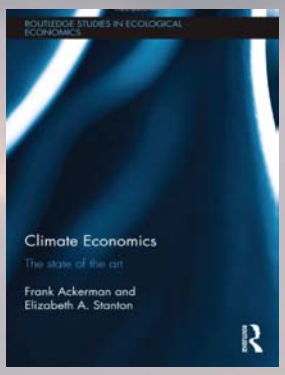


It is pertinent in this context to note that many activists and philosophers explicitly adopt an egalitarian approach, arguing that the right to emit carbon dioxide should distributed equally among all persons throughout the world. This doctrine is the basis of the highly influential ***Contraction & Convergence'*** *approach to climate change (Meyer, 2000).*

Now my claim is not that this egalitarian principle towards emissions is in fact correct. It is, rather, that to reply this can not the case because equality applies only within the state is dogmatic and lacks any challenge grounds that some people need more than equal emissions because they are poor and have development needs (Caney, 2005c). But note that this kind of argument does not invalidate the applicability of "egalitarian" ideals at the global level. Rather it calls for a distribution of emission rights which is sensitive to the needs of the global poor to develop. So rather than watering down the initial principle of global equality the objection expands and develops it. Clearly the question of what constitutes a fair share of global carbon emissions cannot be settled here but the point made above is simply that it is hard to see any reason why the appropriate answer could not be egalitarian in form. The case of global climate change then represents a clear case of a pressing problem that statist conceptions of distributive justice cannot adequately address.

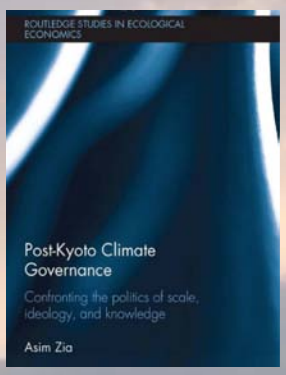
Two further points bear mentioning. First, note that the above argument is not an argument about institutional design. The claim is not that a system of states is ill suited to combat global climate change (though I think that this is a plausible charge). It is one that one major and pressing issue cannot adequately analysed by statist accounts of the scope of distributive justice. Second, note that I am not claiming that climate change is the only instance of the theoretical inadequacy of the statist scope thesis. I believe that the same is, for example, true of global trade negotiations. The question of how the benefits and burdens of trade should be shared among participants raises essentially distributive questions (so the Extreme View is untenable). Furthermore a threshold view is inadequate - even if everyone were above a specified level one can still meaningfully ask whether the distribution of the remaining benefits is fair. And this takes us back from absolute principles to relative ones.

The Cosmopolitanism Reader
Garrett Wallace Brown, David Held
http://books.google.co.uk/books?id=Hb0QQa8A-cQC&pg=PA211&dq=%22Contraction+and+Convergence%22+Jurisprudence&hl=en&sa=X&ei=vPgwUfL-F-So0QW5mIGABw&sqi=2&ved=0CC8Q6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22%20&f=false



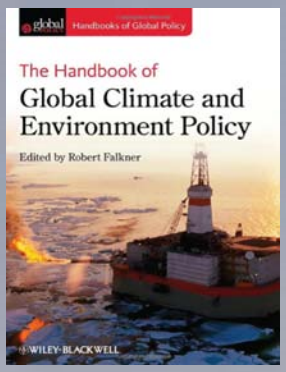
*A well-known proposal is '**Contraction & Convergence'** which creates a transition toward equal per capita rights. The global target for per capita emissions shrinks steadily toward a sustainable level. Countries with per capita emissions above the global target have their emissions allocation reduced over time; countries below the global target receive gradual increases in their allocations. Using this strategy, global emissions would contract while per capita emissions among countries would converge.*

Climate Economics: The State of the Art
Frank Ackerman, Elizabeth A. Stanton
http://www.amazon.com/Climate-Economics-Routledge-Studies-Ecological/dp/041563718X/ref=sr_1_1?ie=UTF8&qid=1362159978&sr=8-1&keywords=Climate+Economics%3A+The+State+of+the+Art#reader_041563718X



*In addition to the emissions per capita decision heuristic that is simulated here as a baseline for demonstration purposes, grandfathered emission reduction targets could also be compared with other "baseline" policy architectures, e.g. '**Contraction & Convergence'** KISS, or high emitter profiles (e.g., Chakravartya et al 2009).*

Post-Kyoto Climate Governance: Confronting the politics of scale, ideology and knowledge. Asim Zia
http://www.amazon.com/dp/0415601258/ref=rdr_ext_tmb#reader_0415601258



In this chapter, I have aimed to provide the reader with a sense of the progress that normative theorists have made in clarifying the concept of climate change justice and suggested how it might contribute to the construction of global climate policy.

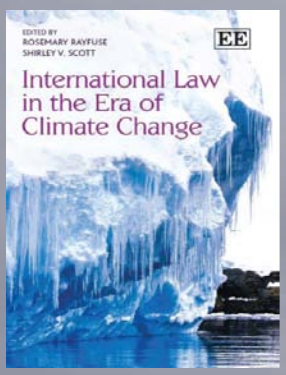
We have found that neither normative theorists nor policy analysts have been able to define a uniquely plausible, and practically useful, solution to any of the three problems of climate justice that could be adopted in an action-guiding manner prior to negotiations amongst parties to the UNFCCC. This is not necessarily a cause for alarm, either normatively or practically.

While normative theorizing can help clarify rival burden-sharing principles for policy-makers and negotiators - as well as explore the fit between these principles and established norms of justice - the selection of policies of mitigation and adaptation is best seen as a matter of deliberation amongst states seeking agreement on a climate solution that none could reasonably reject.

The approach suggested here rejects both the pessimistic vision of "climate change realists" (who tend to view global climate policy-making as a mere matter of politics and power) and the reductionist theorizing of many '"climate change idealists" (who tend to reduce the problem of international climate negotiations to a matter of imposing a favored normative approach to the three problems as if they were soluble to a technical or "moral mathematical" solution).

Normative theory, by contrast, is a more subtle weapon in the arsenal of the global climate community if it is conceived as a mechanism whereby principles can be articulated, developed, and interpreted before being injected into a process of free and fair negotiation that has no predetermined conclusion.

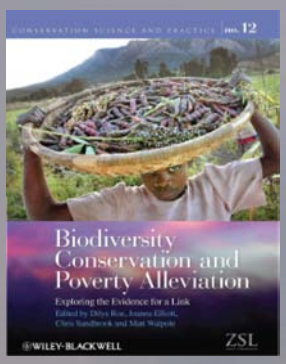
The Handbook of Global Climate and Environment Policy
Edited by Robert Falkner
http://www.amazon.com/dp/0470673249/ref=rdr_ext_tmb#reader_0470673249



The turn to market solutions itself raises flags about the protection of human rights. Once GHG emissions are effectively commoditised, which is the clear implication of the creation of carbon markets, they will, over time, tend to accrue to the highest bidder. In effect, should the market become global, which ideally it must, the highest bidders are likely to be, or to hail from, the world's best-resourced and most energy-thirsty countries. The use of this quintessentially local public good may become increasingly privatised and internationalised. From a human rights perspective, the question would then become: what safeguards are in place to ensure that the development potential that inheres in emissions capability is in fact reaching those who need it to fulfil their basic human rights?

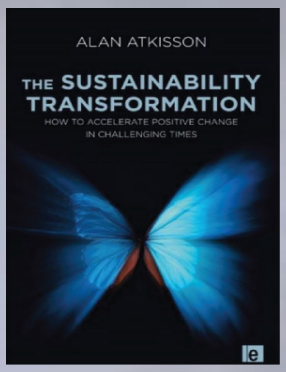
*The '**Contraction & Convergence'** solution to this problem is proposed by the Climate Consent Foundation, who suggest harnessing the emissions market into a broader system aiming at ultimate convergence of per capita carbon emissions.*

International Law in the Era of Climate Change
Rosemary Gail Rayfuse, Shirley V. Scott
http://books.google.co.uk/books?id=WGgu6doIQtcC&pg=PA54&dq=%22Contraction+and+Convergence%22+UNFCCC&hl=en&sa=X&ei=cmMwUbCAIIHJ0AWF7YDIDg&ved=0CD8Q6AEwAw#v=onepage&q=%22Contraction%20and%20Convergence%22%20UNFCCC&f=false



*Enabling poor countries and poor people to produce and consume more, demands an agenda of '**Contraction & Convergence'** of redistribution wealth & resource use, the goods and bads of development.*

Biodiversity Conservation and Poverty Alleviation
Dilys Roe, Joanna Elliott
http://www.amazon.com/Biodiversity-Conservation-Poverty-Alleviation-ebook/dp/B00B9SW8AM/ref=sr_1_2?ie=UTF8&qid=1362142260&sr=8-2&keywords=Biodiversity+Conservation+and+Poverty+Alleviation%3A+Exploring+the+Evidence+...#reader_B00B9SW8AM



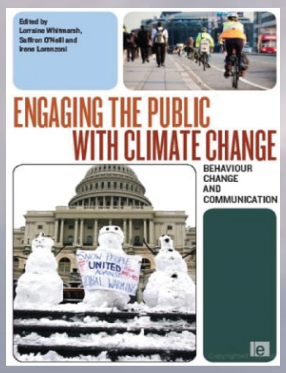
There is something in the impulse to move people with music, and the arts generally that crosses over into Change Agent in often surprising ways.

Consider Bono, who has used his artistic identity to raise awareness about global poverty issues. The public apogee of his transformation from rock star to 'serious' global advocate occurred (in my view) in 2002, when he very publicly took then US Treasury Secretary Paul O'Neill on a tour of Africa. Bono also met with archconservative leaders in the US Congress, helping to soften their hard-line attitudes to aid programmes and to United Nations efforts to address poverty challenges.

More recently, Peter Garrett capped a 25-year career as a rock star with the band Midnight Oil by being named Minister of Environment in Australia.

*Less well known, but arguably just as influential, is the work of London-based violinist Aubrey Meyer who has campaigned tirelessly and with considerable success for an equity-based solution to greenhouse gas emissions called '**Contraction & Convergence**'.*

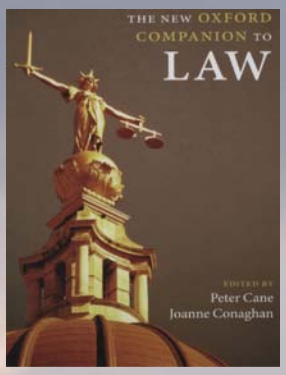
The Sustainability Transformation:
How to Accelerate Positive Change in Challenging Times
Alan AtKisson
http://books.google.co.uk/books?id=IhYF1tZh8x0C&printsec=frontcover#v=onepage&q&f=false



*. . achieving large-scale cuts in global greenhouse gas emissions through a '**Contraction & Convergence**' framework.*

Under such a scheme intended to redistribute responsibility for climate change mitigation equitably worldwide, emissions rights assigned to countries on a per capita basis would converge over time.

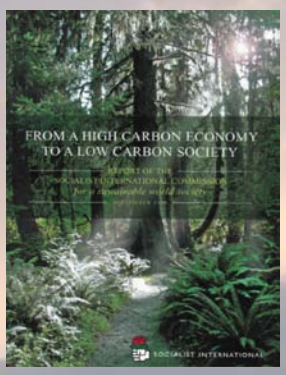
Engaging the Public with Climate Change:
Behaviour Change and Communication
Susanne Moser, Lorraine Whitmarsh
http://books.google.co.uk/books?id=vLxq8Y3skaAC&printsec=frontcover#v=onepage&q&f=false



*Inequalities can also have multi-jurisdictional effects. In negotiating global carbon emissions reductions under the Kyoto Protocol (of the UN Framework Convention on Climate Change) I and II, environmental justice arguments concerning differentiated responsibility and also for '**Contraction & Convergence**' as between developed and developing states, emphasize not only responsibility for past emissions linked to a right to develop, but also the sharing of the environmental implications of the synchronous industrializing and de-industrializing of states now taking place within the global economy.*

In the further, specific context of climate change risks, communities most exposed to the consequences of, for instance, sea level rise over the coming century are those in developing countries situated along low-lying island (especially in the Indian and Pacific Oceans) or sub-continental shorelines (such as Bangladesh) with least capacity to mitigate and adapt. The contribution of environmental justice analysis to addressing such environmental risks lies in its urging of a sharing of burdens, whether in relation to harms threatened or the consequences of mitigation or adaptation.

The New Oxford Companion to Law
Peter Cane, Joanne Conaghan
http://www.amazon.com/dp/0199290547/ref=rdr_ext_tmb#reader_0199290547



*Fairness in allocating emissions targets for all the nations of the world will be the key to reaching agreement on a new climate change treaty. One way forward could be a system based on per capita emissions, with national targets based on population, the so-called '**Contraction & Convergence**' formula created by the Global Commons Institute.*

FROM A HIGH CARBON ECONOMY TO A LOW CARBON SOCIETY
Socialist Commission for a Sustainable World Society
http://www.gci.org.uk/Documents/SWS_Booklet.pdf

Reducing Environmental Footprint

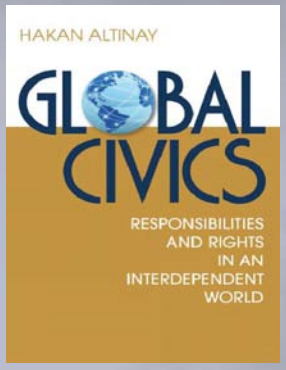
*On a finite planet, every human being has a fair share of limited natural resources. Historically transport has restricted human civilisations to the resources contained within their host bioregion, however today access to fossil fuels has facilitated both a global economy and spectacular overconsumption at a depletion rate aggravated by the reproductive success of the species. To move from plague species to planetary curators we must collectively match consumption with available resource levels at the same time as demonstrating a workable and aspirational quality of life. It is difficult to achieve the reductions in environmental footprint proposed by the '**Contraction & Convergence'**models that calculate each human's rights to scarce natural capital. Studies by Best Foot Forward/SEI/Bioregional in 2000 require significant changes to lifestyle and habits. The diagram to the left shows broadly the proportions of CO2 for one's personal carbon footprint, and that if we want to be truly sustainable, then all segments need reducing.*

*ZED factory believe that a pragmatic way to start the process of contraction and convergence begins by carefully modifying a small part of an existing community, using zero carbon projects to prove that a lower resource footprint is workable, fun and of higher value. By reducing resource demand on a plot by plot basis – it is always possible to reduce the overall demands of the city. We believe that concentrating on behaviour change alone can lead to ecofascism, and it is always better to provide the public with a well considered infrastructure framework that facilitates a low carbon lifestyle – allowing each individual to adapt when and if they see fit. The following calculations examine the range of technologies that would be required to an obtain a fair earthshare ecological and carbon footprint meeting the '**Contraction & Convergence'** model. The footprints are done on a per habitant basis.*

The ideal scenario demonstrates the limit set for 2020 under the contraction and convergence data given the projected rise in population. Studies have shown that all sectors need to be significantly reduced to achieve the target emission levels. A severe change in lifestyles will be required to achieve these targets. The element that indirectly links all of the sectors is the built environment, encompassing local food sources, public transport, closed loop waste recycling or simply a school that is within walking distance. The diagram to the right illustrates previous data collected from our projects as well as the hypothetical "ideal" scenario to be achieved for 2020.

Some of the projects' "buildings" segment falls to the left of the Y axis. This shows that in these cases, these projects' buildings generate more energy than they use (even after embodied carbon is taken into account). This therefore means that this "surplus" can be used to offset other parts of that resident's life, such as transport or services. The climate neutral buildings concept provides a rigorous whole life carbon footprinting methodology. This shows how careful building and urban design becomes the mechanism that allows the other sectors to function and obtain the targets required.

ZEDlife Zero Carbon Zero Waste Tool Kit
http://www.gci.org.uk/Documents/zedlife_.pdf



Six workshops May 2011 Sabanci University Istanbul, Turkey
How Do We Survive and Prosper in the Global Village?
http://books.google.co.uk/books?id=2ZkiL0hudEAC&pg=PA141&dq=%22Contraction+and+Convergence%22+Holocaust&hl=en&sa=X&ei=Mwk2UerUMvGR0QXY9ICQDg&sqi=2&ved=0CDQQ6AEwAQ#v=onepage&q=%22Contraction%20and%20Convergence%22%20Holocaust&f=false

It has become clear that we live in an increasingly interdependent world. What is less clear is what sort of responsibilities we have towards each other. Without at least a draft of global social contract, it would be impossible for us to navigate our epic global interdependence. Sabanci University, as a world university situated in Istanbul, believes that a university experience in the 21st century has to include a conversation about our responsibilities towards the whole of humanity. As such, Sabanci University has started a series of mini workshops on Global Civics. 2010-11 series consist of six mini-workshops open to the whole of Sabanci University community, including administrators, faculty and students. The series are co-facilitated by Hakan Altinay and Nihat Berker. These workshops take place once a month at Karakoy Communication Center on Fridays between 18:30 and 20:30. Participants are asked to be present at all six events throughout the year, prepare in advance for each workshop, lead the presentation of at least one work during the year, and otherwise actively participate in the discussions. They are also writing a blog after each session. Successful participants will be able to co-author a paper for publication at the end of the Series, and receive a certificate.

The first session will be on the State of the World. Participants will discuss various theories on globalization, including Richard Nisbett's The Geography of Thought, Chanda's Bound Together, The World is Flat by Thomas Friedman, In Defense of Globalization by Jagdish Bhagwati, Globalization and Its Discontents by Joseph Stiglitz, Manifesto for A New World Order by George Monbiot. They will watch Baraka; review UNDP and World Bank statistics on the state of the world; and analyze data from World Values Survey and WorldPublicOpinion.Org.

*The second session will be on the environment. Participants will watch 11th Hour; and review IPCC reports including the 2007 (AR4) Synthesis Report. They will read A Blueprint For A Safer Plant by Nicholas Stern, Storms of My Grandchildren by James Hansen, Earth by Bill McKibben and www.350.org; they will also review Climate Analysis Indicators Tool, created by the World Resource Institute & '**Contraction & Convergence**'.*

The third session will be on genocide. The participants will read We Wish to Inform You That Tomorrow We Will be Killed with Our Families by Philip Gourevitch; watch Shaking Hands with the Devil; research the International Criminal Court; and watch The Reckoning.

The fourth session will be on poverty. The participants will read Never Let me Go; and Global Problems, Global Solutions by Bjorn Lomborg.

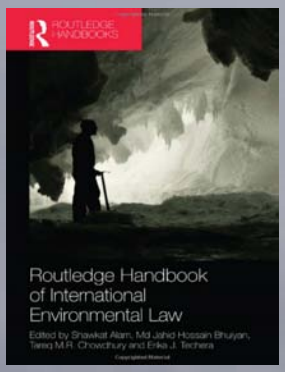
The fifth session will be on current and proposed schemes to manage global interdependence. The participants will read A Better Globalization by Kemal Dervis, The Great Experiment by Strobe Talbott, Does Fairness Matter in Global Governance by Hakan Altinay, and Global Public Goods. Kemal Dervis or Strobe Talbott will be a guest speaker for this session.

The sixth session will be a debate about our own responsbilities in an interdependent world. In preparation for the final session, participants will research Vasudhaiva Kutumbakam, Ubuntu and global civics. They will watch an episode of Seinfeld and read Life is not Fair by Bill Barnard. For a plurality of perspectives, they will also watch The Lives Others and Pay it Forward. Video conferencing with other universities with similar predispositions and activities may be organized. After this session, participants will either co-author Global Civics 2.0 or contribute to a collection titled Letters to 7 Billionth Person. Successful participants will receive a certificate.

A green economy calls us to: -

- *Make sustainability a political priority*
- *Think in terms of systems, and act on the high leverage points (structures and mindsets)*
- *Develop a bold, new economic vision that plans for the long term and provides for future generations*
- *Live within safe ecological margins, and redefine our relationship to the natural world and to each other*
- *Address unjust disparities of wealth and income*
- *Prioritize meeting the needs of the world's poor (in both high- and low-income countries) while simultaneously reducing the unsustainable Ecological Footprint of the world's rich along a global framework of '**Contraction & Convergence**'*
- *Redefine prosperity in more than simply economic & consumptive terms, & adopt new measures of progress and wellbeing*
- *Recognize that a country cannot "go at it alone", and that reciprocity and cooperation is a key pillar of global wellbeing*

Input for Zero Draft compilation document
Canadian Earth Summit Coalition
http://www.gci.org.uk/Documents/248canadianearthsummitcoalition-submissiontounzerodraft-130228014456-phpapp01.pdf



One solution to the impasse in the climate change negotiations is a reinvigorated conception of common but differentiated responsibility that imposes differential mitigation obligations on all nations based on historic responsibility, vulnerability, and capacity to reduce GHG emissions.

*Popularly known as '**Contraction & Convergence**' this approach would cap and reduce greenhouse gas emissions by allocating emissions entitlements to each nation based on the above criteria with the ultimate goal of having Northern and Southern per capita emissions converge. Excluding the global South from mandatory emissions caps is fundamentally unjust because it equates countries such as India and China (with their significant and growing emissions) with Sudan and Tuvalu (with their minimal emissions, limited capacity, and significant vulnerability) and guarantees gridlock in the climate negotiations as the planet teeters on the brink of catastrophe.*

*The '**Contraction & Convergence**' approach to climate change will promote environmental justice by scaling back the North's overconsumption of the planet's resources so that the South will be able to improve living standards - instead of simply grand-fathering the global North's emissions based on the climate regime's 1990 baseline. Foregrounding justice in the climate change negotiations can also produce a new model of economic development that reduces GHG emissions, improves the well-being of the world's poor.*

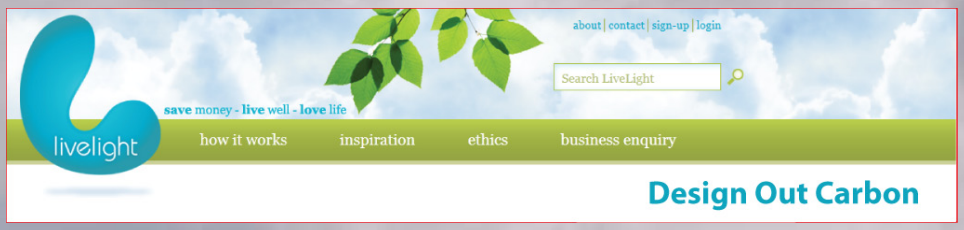
Routledge Handbook of International Environmental Law
Shawkat Alam, Jahid Hossain Bhuiyan
http://www.amazon.com/dp/0415687179/ref=rdr_ext_tmb#reader_0415687179

'Contraction & Convergence'

Contraction is straightforward to understand, if far from straightforward to implement. The world community sets national carbon quotas to gradually Contract people's carbon dioxide emissions to a sustainable level, currently estimated at two tonnes of carbon dioxide per year for each citizen of the world, which is around 13% of the current United Kingdom and 7% of the United States emissions per person. This target aims to keep carbon dioxide concentrations at less than 450 ppm (Chapter 2) and global warming at less than two degrees Celsius. This, as we know, will come with substantive health co-benefits as we swop motorcars for muscle.

Convergence recognises that currently many poor nations actually create less carbon than the two-tonnes per-person- per-year target. Under a convergence scheme, these countries could either increase their industrial capacity or sell their carbon entitlement to the rich world through carbon trading schemes.

Sustainable Healthcare Knut Schroeder, Trevor Thompson, Kathleen Frith, David Pencheon
http://books.google.co.uk/books?id=MXaBFqMhAicC&pg=PA65&dq=%22Contraction+and+Convergence%22&hl=en&sa=X&ei=oa8uUbepNunJ0AWh4YH4Dg&ved=0CEAQ6AEwAw#v=onepage&q=%22Contraction%20and%20Convergence%22&f=false



We all know that climate change is a big deal, but it so often seems that our individual efforts are pointless against such a huge global issue. LiveLight focuses on the things that can improve our lives now, and also do what is necessary to give future generations a better chance of enjoying our beautiful world.

*At LiveLight, we follow the principle of '**Contraction & Convergence'**. You can read more about this here, if you wish. Contraction and Convergence means that people who currently produce very high levels of greenhouse gas need to reduce very quickly, mainly by reducing how much fossil fuel we burn. As fossil fuels are getting more and more expensive anyway, and create numerous health and social problems, this has potential to have huge personal benefits for us all.*

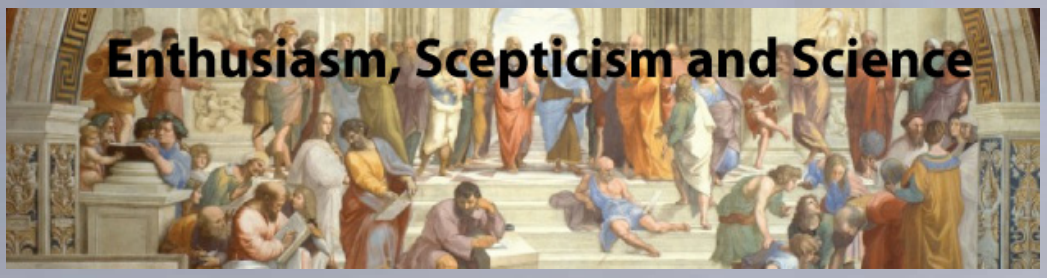
Designing out carbon is the easiest and cheapest way to move to a low carbon lifestyle. It is different for everyone, according to your own personal circumstances. We will post further thoughts on how to design out carbon over the coming months - keep an eye on our inspiration page and newsletters. In the meantime, you can sign up to LiveLight and get our free cost and carbon helper, to find out how you can start doing your bit to keep our world beautiful.

Design Out Carbon
http://livelight.org.uk/designoutcarbon

*'**Contraction & Convergence'** has a role in tackling climate change. We need all these tools, and have to do different things differently.*

Rethinking wellbeing seminar series
Thinking about the economy differently

SCOTLAND'S FUTURE, SEPA, SNH, SCOTTISH GOVERNMENT
http://www.gci.org.uk/Documents/wellbeing_seminar_report_2_.pdf



Enter the Economists: - The Price of Life and how the IPCC only just survived the other chapter controversy - Bernie Lewin

http://enthusiasmscepticismscience.wordpress.com/2013/01/15/enter-the-economists-the-price-of-life-and-how-the-ipcc-only-just-survived-the-other-chapter-controversy/#more-977

What price Climate Change? Before Stern and Garnaut there was Pearce. Chapter 6 of the IPCC Working Group III 2nd Assessment by David Pearce et al is now forgotten, yet it caused the first public controversy in the history of the IPCC. This chaotic assessment of scant and confused costings of expected damages was under attack before it was even drafted. The ensuing scandal over the price of life among the world's poor dragged the IPCC into an embarrassing political controversy that broke at the very first Conference of Parties to the climate treaty. It was a taste of things to come, with authors simultaneously publishing what they assessed, leaking drafts, and pressure at the intergovernmental Plenary to change the chapter in conformity to a rewrite of the Policymaker's Summary. But there were important differences also. While later in Madrid Ben Santer was entirely complicit in the push to change his Working Group I Chapter 8, David Pearce and his crew held their ground against the onslaught in workshops, plenaries and finally through the press. Indeed, the authors won the battle for scientific independence, but at what price?

Part 1: Aubrey Meyer - An Uncommon Activist
The defining row over the 'value of life' in IPCC 1994/5

Meyer's activism continues to this day in his advocacy of ***'Contraction and Convergence'****.*

At first I thought I was fighting to save rubber trees, then I thought I was fighting to save the Amazon rainforest. Now I realise I am fighting for humanity. —Chico Mendes—

Chico Mendes. That man is a good place to start. Or at least, his death. Gunned down in his home out in the wild west, almost as far west as you can go into Brazilian Amazonia.

Barefoot and illiterate, growing up into colonial serfdom, it was all Chico knew since before he was ten years old to be out in the rainforest tapping the rubber trees. But when news of Chico's death reached a certain violinist in London, it would turn his life around and launched him on a collision course with IPCC Working Group III. The onslaught against the Working Group began in 1993 and continued through the next 2 years as the co-chairman, Jim Bruce, tried & tried again to get the Second Assessment Report over the line. He nearly didn't make it.

Protests against the method of costing the damages of climate change in this Report's Chapter 6—where the death of the world's poor is valued much less than the death of the rich—turned a large grouping of poor nation delegates against the Report, against the authors, and against the rich nations from whence they came. A wedge driven deep in the fault line already opening between rich and poor nations at the climate treaty talks, the Price of Life Controversy was orchestrated by one man, our violinist, Aubrey Meyer.

Aubrey Meyer playing the violin at the UNFCCC

This unlikely course of events began back in 1988 when Meyer was seeking a theme for a new musical. He could hardly have missed the reports of Chico's bloody demise as they came through on the eve of Christmas. At the end of a year when global environmentalism broke into the mainstream as never before, the news was everywhere; for this humble rubber tapper, born a nobody, died famous, world famous.

What began with a determination to preserve the livelihood of the local tappers, by 1985 had converged with the global campaign to preserve the entire Amazon. Advocating the sustainable development of the forest that sustained them, the united rubber tappers of Brazil formed under Chico's leadership to become the cause célèbre of the global environmental campaign to preserve not only the Amazon but threatened rainforests everywhere. The rise and demise of Chico Mendes captured the imagination of the entire movement – a martyr to environmentalism immortalised in prose, film and song.

Indeed, this Amazonian tragedy held Aubrey Meyer captive that Christmas, but there never was a Chico Mendes musical. Instead, the tapper's story sparked the musician's epiphany, launching his life in an entirely new direction. Anyone who has ever heard Meyer speak will tell you that the passion for music never left him. But soon Meyer began to discover new talents, acknowledged by friend and foe, as he threw himself into the services of Chico's cause—a cause that is as much about defending the global environment as it is about defending the rights of the poor.

David Pearce *the co-coordinating lead author of Chapter 6, died in 2005 aged 63.*

When Meyer's own brand of activism arrived at the climate talks, it was seen to be threatening what others saw as the greater purpose—a general agreement for action on climate change. His aggravation of this rich-poor split seemed to delight parts of the business lobby as much as it frustrated the environmental establishment. Most of all, Meyer's intervention exasperated the expert economists drafting Chapter 6. As we shall see, the dispute was never really resolved. When the controversy was over and the Report published, David Pearce, the coordinating lead author, remained insulted and perplexed that their expert assessment could be called into question by the government delegations due to the confused and spurious reasoning of this enthusiastic outsider with his 'silly campaign of misinformation and abuse.' In fact, to his dying day, Pearce remained convinced not only that Meyer served the interests of the coal lobby, but that they were funding the whole absurd charade.

Aubrey Meyer and the Global Commons Institute

Meyer began his activist career campaigning for all those like Chico whose only wont is to continue living sustainably under the rainforest canopy. The movement aimed to protect the home of 'the forest peoples' against the loggers, rancher and broad-acre farmers keen to tear it all down. It was through campaigning around a petition called 'Save the Forests, Save the Planet' that Aubrey Meyer's name became familiar to the letters page of The Guardian. Then in 1990, influenced by the 1st IPCC Assessment and the 2nd Global Climate Conference, Meyer broke away from the UK Green party that he had joined two years earlier, and away from his work for the preservation of primitive ways of life. Now convinced of the overwhelming urgency to tackle the climate problem, he set up a new group still advocating for the world's poor, but now for their economic advancement and in the emerging arena of the global emissions treaty negotiations.

With greenhouse gas emission rates generally reflecting levels of energy production, Meyer was not the first to point out that emission rates are a fairly direct indicator of levels of economic development.

Upon this uncontroversial fact Meyer's campaigning would now be grounded: any insistence on poor nations to cut emissions is tantamount to refusing them the opportunity to climb out of their impoverishment. Indeed, his activism in this field continues to this day in his advocacy of ***'Contraction and Convergence'****.*

A new petition pointed out that it is the already-developed countries 'who created and who continue to exacerbate this global crisis,' while 'the majority of the people are struggling to meet basic human needs.' While the majority are too impoverished to generate more than the minimum of emissions, it is the 'luxury-based activities' of the richer nations mostly causing the problem. Petitioning for rich countries to take responsibility and to take immediate corrective action, Meyer's group succeeded in collecting nearly 50 signatures from UK parliamentarians. And they might well have achieved similar support across continental Europe as they pointed the finger squarely at the USA, the greatest offender, for its refusal to commit to any emissions target.

Thus, we find Meyer, active early in the stand-off with the USA—a full two years before the Rio Earth Summit introduced the climate treaty framework. And we should remember that the US resistance would only be accentuated by the ascendance of the Clinton-Gore Administration in 1993. While the environment movement and a strengthening science lobby were working for climate action in concert with a sympathetic administration, the US Congress dug its heels in, refusing to even consider any emissions agreement that did not include an immediate commitment from the poorer nations. Lobbying on the other side was this tiny group of activists pamphleteering out of Meyer's cramped London digs when they were presented with a whole new opportunity for engagement.

A Rich Man's Bias

In November 1992, at its first general meeting after the Rio Earth Summit, following a presentation by the IPCC Chairman, Bert Bolin, the IPCC had decided to reform its Working Group III for its 2nd Assessment so as to give its entire focus to the neglected 'economic and social dimensions' of the problem. This is how the IPCC contrived the belated entry of the economists. Not that their new 'green economics' was exactly ready for assessment. A new method of accounting had only recently been formulated to incorporate environmental value into the equation of wealthy economies. At the end of 1992 this was less than half baked, with only a few incomplete recipes rushed to the table. Yet, within the policy space suddenly opened up by the new treaty framework, there was now a burning hunger for global Cost/Benefit evaluations to support global action. The selected expert authors could do nothing for it but rush though the simultaneous publication & assessment of their first attempts to globalise their erratic estimations.

2.3 With respect to the development of the work plan of Working Group III, the Panel agreed with the Chairman's proposal that a workshop of experts, with a broad representation from developed as well as the developing countries and countries with economies in transition, be planned in March-April 1993 with the aim of developing the base material to help the Working Group formulate its work plan.

2.4 All three Working Groups were encouraged to collaborate with relevant international and other organizations as they deemed fit.

The minutes of the 8th IPCC meeting (pdf) give some insight into the reformation of Working Group III. The Chairman's paper introducing the proposal is appended. This extract shows how the development of the 'work plan' is left wide open to broad-based discussions (with governments and NGOs) up to and including the Working Group's inaugural Plenary in May 1993. A draft work plan, including explicit statements of commitment to the sustainable development goals of Rio, is then submitted and approved at the 9th IPCC meeting in June (pdf minutes, more in Pt II) **http://www.ipcc.ch/meetings/session08/eighth-session-report.pdf**

The minutes of the 8th IPCC meeting give some insight into the reformation of Working Group III. The Chairman's paper introducing the proposal is appended. This extract shows how the development of the 'work plan' is left wide open to broad-based discussions (with governments and NGOs) up to and including the Working Group's inaugural Plenary in May 1993. A draft work plan, including explicit statements of commitment to the sustainable development goals of Rio, is then submitted and approved at the 9th IPCC meeting in June (pdf minutes, more in Pt II)

Meyer was already familiar with this 'sustainable development' economics and the first push toward a globalised analysis. In fact, he named his new group, the Global Commons Institute (GCI) from a chapter heading in David Pearce's second book on 'greening the world economy' (Blueprint 2). Along with other NGOs, the GCI attended the inaugural Plenary of the newly re-constituted Working Group III in May 1993. There they forged alliances with poor nation delegations who advocated for their continuing participation. In response, Bert Bolin invited the GCI to present a paper at one of the Group's workshops on 'equity' that following November.

For Working Group III authors, a pushy NGO proved hard to avoid. The climatologists of Working Group I might well complain, but our economists never had it so easy. Whereas for Working Group I the NGOs were permitted little more than feedback on their drafts, for Working Group III interest groups were encouraged to participate at scoping sessions and exploratory workshops. This opportunity was not wasted on the GCI. Meyer even boasts of a successful campaign to block the selection of perhaps the most obvious candidate to lead the damages assessment, William Nordhaus. He had published the first, rather circumspect, global damages estimation in 1991. And even before any draft was circulated for review, the GCI was already petitioning against the methodology of its authors. This early involvement explains how the dispute first broke into a public controversy so early. In fact, it broke before the Working Group Plenary convened for the line-by-line approval of the Policymaker's Summary (July '95 in Geneva—the WG III equivalent of WG I's Madrid). It broke before the government delegations had even been sent the final draft of the Chapters. And it broke at a much grander forum.

The first Conference of Parties to the UN Framework Convention on Climate Change (FCCC) had long been set for April 1995 in Berlin. We have now just passed 'CoP18' (Doha) with hopes of an outcome subsiding, but the momentum leading into the first CoP was so overwhelming that disruption by sceptical opponents and vested interests was proving difficult. Indeed, nothing so threatened agreement than a letter sent by the Indian delegation to its fellow poor nation delegates about a rich nation bias in the approach taken by the IPCC. In the letter the Indian Environment Minister, Kamal Nath, explains how this bias is exemplified by the very methodology of the studies underlying our Chapter 6. This chapter's analysis is not only 'absurd and discriminatory' but it demonstrates 'the bias which underpins [the IPCCC] assessment intended to provide the basis for policy discussions at the CoP.' They called on other delegations to support them in their efforts in Berlin to have the 'misdirection' of this 'faulty economics' to be 'purged from the process.' (source: pdf)

The ruckus in Berlin that April led to an entire bloc of delegations at the Working Group Plenary in July refusing to accept neither the Policymaker's Summary nor the underlying Report unless Chapter 6 were changed. The Chapter authors held fast in rejecting such intervention as against the IPCC rules. They would not change the Chapter and nor would they accept a Summary that contradicted it. They did agree in a side group to a re-drafting of the disputed passage of the Summary. But, when this was submitted to the Plenary 10 minutes before it was meant to close, the protests began and the meeting collapsed with the matter entirely unresolved.

Even after reconvening in October, when approval was nominally achieved, the authors never accepted the Summary and the debate continued in the press, with calls on both sides for the Chapter to be completely excised from the published report. How had it come to this?

The Economic Value of Life

The task set for Chapter 6 was to assess the research on 'The Social Cost of Climate Change.' This is about estimating the damages that climate change is likely to cause—to give it a monetary value.

The purpose of such a costing would be to weigh up the benefits of committing funding to strategies of adaption or mitigation. A full Cost/Benefit Analysis of climate change requires giving an economic value to that which we indeed value, but which is fully, or partially, outside the market—and this is where sustainable development economics comes in. Previously, natural resources, for example a rainforest, would be attributed little or no economic value. That is to say, a forest's full value, as it stands for now and the future, would not find expression on the accountant's ledger. The idea is that if the full value were somehow expressed in the economic system then this would aid the preservation of those forests that the society considers worth preserving.

Not only forests but other non-market values can be given a 'market-value-equivalent' in various way, usually by establishing a 'willingness-to-pay.' By somehow determining what people might be prepared to pay for a non-market value, market equivalence can be achieved. Likewise for damages—or the loss of value—damages can be determined by finding out how much people are prepared to pay to avoid the loss. This brings us final to risk, where we can determine how much folks are prepared to pay for assurances against the risk of a loss.

One social cost of climate change outside the market is human health and wellbeing. This is something for which we are willing to pay a great deal. And dominant in the economic assessment of health is what we are prepared to pay to avoid death. This should not be thought of as how much an individual would pay to avoid certain death, rather it would be how much an individual or society would pay to avoid an increased chance of death. Once such an economic 'Value of a Statistical Life' (VOSL or VSL) has been determined, it can be used to calculate the value of risk reduction. Such calculations are often implicit behind individual choices over spending on safety measures and insurance, and they are often explicit in the determination of safety standards for food, drugs, vehicles, buildings, infrastructure and so forth.

Now, if we return to the problem of climate change damages, it has been assess that the doubling of the atmospheric CO2 concentration will lead to a few degrees of warming, and that the direct effect of the extra heat on human health will net more than 100,000 extra deaths per year. The task of assessing this 'damage' is to calculate a total economic value for these lost lives. Aggregations of this valuation with other damage estimates can then serve for comparison with the cost of various ways to reduce, or eliminate, these losses through mitigation or adaption. And it turns out that in these early attempts at climate change damages assessments, the valuation of lives is generally so great and so variable that it alone could determine whether the overall level of damages comes in above or below the cost of the various expensive proposals for mitigation. Thus, if we subscribe to this methodology, then the determination of the economic value of a human life becomes critical not only to the determination of how dangerous is climate change, but also the determination of what to do about it.

For many years prior, the economic valuations of life had been used in the Cost/Benefit Analysis of health programs such as inoculations and screenings. Since the 1980s it has been used to justify taxation on tobacco and it also started to appear in the sustainability problematic of wealthy nations—where the costing of morbidity and mortality is accounted into the benefits of pollution controls.

In these sorts of cases the economic value of life is usually deemed constant across the economic system in which it applies. However, with the new global problem of climate change, to be addressed by a global treaty, a new global CBA requires a variability in the valuation of life more or less in accordance with the relative wealth of the local economy. The variability is due more to differences in ability to pay than to any differences in willingness. And it is with this requirement that the Price of Life Controversy began—with the tables of the differential value of a human life given in US dollars and effectively determined according to the relative wealth of nations.

The problem for the Chapter 6 authors was that no such tables existed—well at least they had yet to appear in the peer review literature. Indeed, climate change damage costings were generally only found in studies of rich nations, notably the USA. However, the doctoral dissertations of two of the Chapter's junior authors (Tol & Fankhauser) were global, and did tabulate differential values of life. It was these tables, and only these, that were used in the Assessment. With the supervisors of these dissertations leading the writing of the Chapter (Pearce & Vellinga), the occasional attempts by Pearce (and Bruce) to distance the assessors from the research being assessed—and so from responsibility for these controversial calculations—proved difficult to sustain. And so when it was revealed that wealthy westerners were found to be 10 or 15 times more valuable than the impoverished masses, it is not surprisingly that the (leaked) draft Report soon attracted some embarrassing headlines, like this one:

THE INDEPENDENT ON SUNDAY

One Western life is worth 15 in the Third World, says UN report

By Geoffrey Lean
Environment Correspondent

July 23rd 1995

LIVES in poor countries should be valued as worth 15 times less than those in the West, according to UN economists calculating the possible cost to the world of global warming.

Their calculations are in unpublished official documents, seen by the Independent on Sunday, which are expected to be endorsed by the world's governments this week. The documents are designed to guide policymakers in deciding how to respond to potentially disastrous climate change.

The calculations - which the documents admit are "controversial" and "reflect discrimination against the less well off" are bound to create an international row just as evidence is mounting that global warming is taking hold. Research in both Britain and the United States shows that 1995 could be the hottest-ever year worldwide.

Experts say that the huge disparity between the value placed on life in rich and poor countries minimises assessments of the damage that will be done by global warming and so will give governments an excuse to avoid taking action to combat it.

Sir Crispin Tickell, the Prime Minister's chief advisor on the environment, describes the calculations as "ludicrous" and says they could discredit international attempts to evaluate the extent and consequences of the threatened climatic change. He has already written to protest to leaders of the Intergovernmental Panel on Climate Change (IPPC), the official body set up by world governments to assess the dangers of global warming. The documents have been prepared by economists in an IPPC working group and are expected to be approved by a plenary meeting of IPPC in Geneva on Tuesday. They say that, by the best estimates, a doubling of the that the cost of cutting emissions of the gas would be greater, this may be taken as justification for inaction.

But these calculations are partly based on valuing lives in developing countries - where most of the deaths, mainly from strokes and heart attacks brought on by the extra heat, would occur - at £62,500 each, compared to £940,000 each in Europe and North America.

Lives in the former Soviet Union are valued at £180,000 each, one fifth of the figure in the West. Calculations which value all lives equally, and include other factors missing from the official assessment, produce estimates that global warming could cut the world's wealth by up to a quarter each year - which would call for dramatic preventative action.

Michael Grubb, head of the Energy And Environment Programme at the Royal Institute for International Affairs, who has made a special study of the costs of global warming, describes the 1.5 to 2 per cent figure as "ridiculously definite" and almost certainly a large underestimate. He says that it is so far impossible to make an accurate assessment, but the cost could range from virtually nothing up to 25 per cent of world GDP.

Ashley Meyer, director of the Global Commons Institute, which has produced similar figures, says: "The calculations the governments are being asked to endorse are profoundly unreliable and would 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."

Another heat wave on its way

MORE hot and humid weather, with temperatures into the eighties, is expected over much of Britain this week, writes *Glenda Cooper*.

The current heat wave ended temporarily yesterday as a cold front finally broke the unpleasantly muggy spell across the country. But the London Weather Centre said that heat and humidity were likely to be back by Tuesday with temperatures once more reaching 26 to 27 Celsius (80F). Temperatures today and tomorrow, however, will be much more the seasonal norm, at around 21-22C (70-72F) in the south, and 18-20C (64-68F) further north.

Last week temperatures as high as 30C (86F) were reported in Doncaster on Wednesday and 32C (90F) at Heathrow on Thursday, while high humidity levels made the warm weather barely tolerable at times. On Friday, the south remained stifling, and the weather centre reported temperatures of 29C (84F) on its roof in centre' London, 30C at Gatwick Airport and 31C 88 F) at Southend - comparable to Athens, Istanbul and Hong Kong. But southern Spain provided the hottest spot in Europe, with Seville recording 44C (111F). The recent high temperatures and humidity are thought to have killed more than 800 people in America's Mid West, while Shanghai is experiencing its worst heat wave in 50 years.

Three fatal heart attacks in France and 12 in southern Spain have been blamed on the heat. In Doncaster, an eight-year-old boy was found drowned in his bath on Thursday after playing out in the sun all day. It is thought he may have suffered heatstroke and passed out, although a post-mortem examination proved inconclusive. An inquest will be held next week.

ATHENS: Fires that burned more than 200 homes and other buildings and destroyed one of the Greek capital's few remaining forests were brought under partial control yesterday, and officials hoped they would be put out by last night. The fires, fuelled by gale force winds, burned thousands of acres of forest around Mount Pendelikon, north-east of the capital.

So far this year worldwide temperatures have equalled those in the first part of 1990, the hottest year on record, suggesting that global warming is resuming after a brief lull. The lull was caused by the huge volcanic eruption of Mount Pinatubo in the Philippines in the summer of 1991, which flung 20 million tons of sulphur high into the atmosphere, filtering out sunlight. Until the eruption took place 1991 was set to be even hotter than 1990 after six record-breaking years in the 1980s.

The sulphur has now dropped out of the atmosphere and the hot years are returning. 1994 was the fourth warmest year ever and would have been the hottest if it had not been for an exceptionally cold January and February worldwide. Now 1995 is bidding for the record.

One western life is worth 15 in the third world says un report, Independent on Sunday, 23 July 1995 by Geoffrey Lean

This feature article appeared on the eve of the July 1995 Plenary in Geneva that was supposed to (but failed to) accept the Working Group's Report. New Scientist had picked up the story much earlier, with Fred Pearce's first report from Berlin (1Apr95) opening with this rhetorical embellishment:

Is the death of an overweight American from heatstroke a greater loss to the world than a Bangladeshi farmer struck down by a tropical cyclone?

He continues prophetic: Economists advising the world's governments on how to cope with global warming say yes. And their answer poses a new threat to the climate negotiations beginning in Berlin this week.

A lunatic way to count the cost, New Scientist, 8Apr95 New Scientist gives space to critics of David Pearce & Chapter 6 already during CoP1, including the use (by Paul Ekins) of implicit criticism in the work of one of the Chapter's lead authors, William Cline. (8Apr95)

A week later New Scientist reports on a speech in Berlin to a municipal leaders meeting by 'a prominent green economist,' Paul Ekins of Birkbeck College London, where he describes the damage assessment as the 'economics of the madhouse.' Of course, at this stage the report was not finalised—circulating in a draft clearly marked 'not for quotation'—but it became public property after the Indians brought the GCI campaign to the treaty talks in Berlin.

What made matters worse for the GCI was that after applying these valuation schemes, the total damage bill turned out not to be so alarming—the annual damages at a doubling of CO2 would be no more than 2% of global GDP. Damages of that magnitude could easily support moderately costed steps to mitigation (especially 'no-regrets' efficiency measures) but hardly the drastic immediate action that the GCI and other activists were demanding. So, not only was the devaluation of the poor lives taken as demeaning, but this analysis appears to get the rich nations off the hook for all the pollution they had caused in becoming wealthy—and that they continued to cause in staying wealthy and healthy as the globe warms. That, at least, is how the GCI called it, and the argument was catching. The Guardian explains how the draft report purports to show . . .

> *" . . . That the cost of reducing greenhouse gas emissions would probably be greater than 2 per cent of Gross World Product (GWP). While the losses if greenhouse gas emissions were not curbed would amount to only 1.5 to 2 per cent of GWP. The implication, Aubrey [Meyer] argued, was that if these figures were allowed to stand it would mean that the world community would do very little to slow the warming because it would believe it was cheaper not to."*
>
> *[by Douthwaite, 1Nov95]*

The author of this newspaper report is in fact a member of GCI but other journalists and delegates would also follow the GCI lead in making a direct comparison of these two figures from two parts of the Assessment—mitigation costs (>2%) against annual damages at 2xCO2 (1.5 – 2%) — a comparison that is not entirely fair (as Pearce would later explain). All the same, the conclusion is more or less right: the total damages are assessed in a range that goes nowhere to support actions beyond those that are either cheap or that we might do anyway for other reasons. Whereas, if all life were valued at the rich country rate, or in according to different criteria suggested by the GCI, then the damages due to Climate Change would be assessed much higher, and so they would justify the more drastic and expensive action aimed at stopping global warming altogether. Unfortunately these alternatives methods of calculation were not in, or supported by, the peer review literature. On this bases alone the Chapter 6 authors could, and did, refuse repeated demands to include these alternative calculations in their Assessment.

Developing countries dispute use of figures on climate change impacts

London. An intergovernmental meeting held to finalize a draft document on the social costs of climate change ended in stalemate last week. Representatives from developing countries attending the meeting refused to endorse a suggestion that global warming would cause twice as much economic damage to the industrialized nations as it would to the rest of the world.

Working Group III of the Intergovernmental Panel on Climate Change (IPCC) has been preparing a draft summary for policymakers of the damage likely to result from a rise in global temperatures after a doubling of carbon dioxide concentrations.

But the drafting ran into controversy when developing nations, led by India, and China, challenged the use of different criteria for measuring damage in countries of the North and of the South.

The value put on a death in a developed country, for example, was calculated to be 15 times higher than in a less industrialized nation. Such disparities result partly from the conversion of all estimates of loss from national currencies into US dollars. "$1 in, say, Cambodia is not the same as $1 in the United States," one delegate remarked.

Also at issue is the value to be placed on the 'abatement costs' of global warming. The IPCC committee had calculated that slowing down global warming could be more expensive than merely paying for the damage caused by a doubling in carbon dioxide concentrations (1.5 - 2 per cent of GWP).

But critics such as Aubrey Meyer of the environmental group Global Commons Institute, based in London, disagree.

Meyer argues that cost-benefit analysis should not be used to assess the damage likely to be caused by global warming. "The difficulties of allowing for risk, or assessing the value of a plant or animal species that becomes extinct, are well known," he says.

Narasimhan Sundaraman, secretary to the IPCC, acknowledges disagreements over putting a value on loss of life. But he adds that industrialized nations' representatives are willing to consider alternative methods of modelling.

At the same time, he points out that developing nations have so far failed to propose a single workable alternative. The IPCC working group will attempt to finalize the policy-makers' summary of its report at its next meeting in Montreal, Canada, in October.

Ehsan Masood
NATURE VOL 376 3 AUGUST 1995

'Developing countries dispute use of figures on climate change impacts' by Masood, Nature, Vol 376 (3Aug95) p374

Nature picks up the story after the inter-governmental Plenary in Geneva failed to approve the WGIII Summary for Policymakers (Vol 376 p374, 3Aug95)

What further infuriated the poor nation delegations was that the IPCC Report also assessed that climate change would have a much greater impact on impoverished and agrarian cultures, with the body count in the developing world far outstripping the count among the air-conditioned rich. Thus, not only were the Global CBA calculations suggesting that it would be cheaper to take very little action to slow the warming, but it would be cheaper… because…well…because saving the lives of those thousands of poor folks just ain't worth it. That this discrimination in the accounting of lives conveniently serves the interests of the rich-countries is made explicit in the GCI's formal response to the first draft of the Assessment:

The key question which now also arises is this: are all human lives equally valuable or not? Moreover, should economists employed by the nations responsible for causing the problems of climate change, have the job of valuing the lives which are going to be lost? And even more to the point, should they value the lives of the people who are not responsible for creating the climate changes, as less valuable than the lives of those responsible? Surely we all have a fundamentally equal right to be here: surely each person is equally valuable in this fundamental way? So far the global cost-benefit analysts say no, this is not the case.

Uncertainty and the Economics of Genocide

In his critiques, Meyer also elaborated concerns about the level of uncertainty. Even if we accept the methodology of Global CBA, the Report appears to ride roughshod over the layers and layers of uncertainty and the gaping holes in the data (see Meyer and Cooper 1995 pdf). These inadequacies are indeed elaborated in the Report to such an extent that they seemingly preclude a quantifiable result within any meaningful range. Yet, a positive result is declared, it is well defined and it is presented unqualified by a confidence interval.

In the introduction to Blueprint for a Green Economy [1989, p 13-14] Pearce reminds us that any uncertainties about economic impacts of greenhouse gas emissions ride on top of the uncertainties about regional impacts on sea level and climate (he mentions the limitations of the climate models), and these in turn ride on top of the uncertainties about the climate sensitivity (he mentions especially the problem of cloud feedback). Yet, in Chapter 6 the economic damage resulting from 2xCO2 is presented in a precise range of one two hundredth of GDP. Even if the expected impacts of the business-as-usual scenario are taken as given—as solid, definite certainties—then equating 2xCO2 with 1.5% to 2% damage to GDP still remains an incredible declaration when we consider the level of success that economists have in predicting other impacts on GDP more than a few years in advance.

It was not only the GCI who were concerned this quantification of damages within a 0.5% range might mislead policymakers. Others began to speak out, including Michael Grubb from the UK RIIA and a lead author of the Report's Chapter 2. Grubb is quoted in the press saying that this damages estimate is 'ridiculously definite.' He considered that such an accurate assessment at this time is impossible. And the inter-governmental Plenary seemed to agree. But when they agreed to replace the figures with the words 'a few percent,' Pearce was outraged. While Tol was fighting on the floor the various distortions and interpolations introduced under GCI influence into the Summary for Policymakers, it was the removal of this aggregate damage estimate that angered Pearce the most. He saw the removal of these figures from the Summary as a direct attack by a misinformed Plenary on the scientific integrity of his report—and their removal remained Pearce's principal concern long after publication [see here].

If Pearce was fighting for the integrity of the scientific process in the making of the Assessment, Meyer was fighting against the use of definitive quantitative statements in a pretense to scientific precision. And to what effect this pretense? Whether consciously or not, this pseudo-science could easily serve to legitimate a diabolical crime.

> *'If IPCC puts its imprimatur on this material by publishing it, this unsafe and discriminatory data will become official advice to the UN negotiating process.'*

Not only would this send the wrong signal about action on climate change, but publishing Chapter 6 would provide the rationale for sacrificing the poor to the unabated economic advancement of the rich. In fact, Meyer goes as far as to call this 'the economics of genocide':

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.

[quoted in The Independent on Sunday, 23Jul95]

Is this really what sustainable economics amounts to? The blueprints for universal and sustained prosperity is realised into the cold-hearted reasoning of an Orwellian nightmare. How could this UN process have come to this horror so soon after launching onto the world stage that marvelous vision for a prosperous common future on this planet?

'Contraction and Convergence' *- This is a vastly popular proposal both among policy-makers of developed countries and academic researchers. Given the strong inequality in the current distribution of per capita emissions [IEA, 2009] and the drastic modi cation to trends in pollution that an implementation of the egalitarian principle would entail, I follow Meyer (2000) and Miketa and Schrattenholzer (2006) by allowing a period of time for the transition to take place.*

Emaneule Campiglio
Grantham Research Institute
http://www.gci.org.uk/Documents/WP114-climate-abatement-policies-and-technological-transfers.pdf

Finally, we can say that there is a real difficulty determining the correct procedure for the choice of a discount rate. While the arguments that lead to adopt descendent rates over time are numerous, the Green Book UK Contraction and Convergence and the Lebegue Group Report France (Commissariat General Plan, 2008) hold the record.

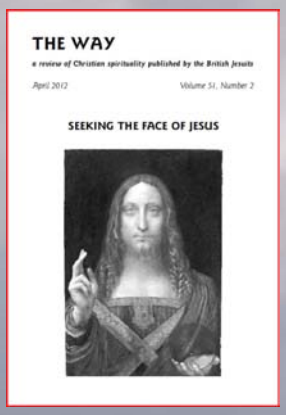
Économie de l'environnement et du développement durable
Lahsen Abdelmalki, Patrick Mundler **http://books.google.co.uk/books?id=GQSnbgSjk84C&pg=PA35&dq=%22Contraction+and+Convergence%22+Lebegue&hl=en&sa=X&ei=WesdUc2sLcix0QWqm4CQAg&ved=0CDEQ6AEwAA#v=onepage&q=%22Contraction%20and%20Convergence%22%20Lebegue&f=false**

Forbes | New Posts +2 posts this hour | Most Popular Most Liked NFL Players | Lists Best Small Companies

FORBES ON-LINE 26 October 2012 Green Party International Traction
http://www.forbes.com/sites/michael-tobias/2012/10/26/transforming-the-white-house-into-a-green-house/

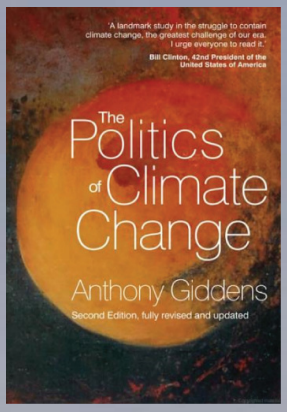
In the U.K., (including Wales) whose Green Party is now headed by Natalie Bennett, there is one Green MP in the House of Commons (Caroline Lucas), two Green Members of the European Parliament and two members of the London Assembly in addition to 140 councilors from all over the UK. They are calling for an end to factory farming, animal experiments, genetic engineering, and the patenting of animals, among countless other measures. On Climate Change they have prudently proposed a twelve-point plan to comport with the Global Commons Institute ***'Contraction and Convergence'*** *(C&C) [per capita/per country] reduction strategy, one far more innovative and equitable than that initiated in Kyoto.*

THE WAY - A review of Christian spirituality British Jesuits
CLIMATE CHANGE AND THE SPIRITUAL EXERCISES
Stephen McCarthy 2011
http://www.gci.org.uk/Documents/512_.pdf


THE WAY
a review of Christian spirituality published by the British Jesuits
April 2012 Volume 51, Number 2
SEEKING THE FACE OF JESUS

I was invited to give a talk on climate change to the environmental group at our local parish. It followed on from a previous meeting when the speaker had argued that the issue was essentially one of social justice and that the problem is not just one of greenhouse gas emissions but concerns a whole range of the earth's resources. We in the West, with our materialist and consumerist lifestyles, do not merely contribute to climate change but devour a totally disproportionate share of the earth's natural wealth, short-changing the rest of mankind and generations to come. This is a moral issue, one of social justice. Human damage to the environment is one of the main moral issues of our age. As such, Christians must be concerned about it. Environmental problems are in one sense just a symptom (albeit a very important one) of injustice in the world—the injustice of a small part of the population consuming the great bulk of the resources, leaving the majority to share out the relatively little that remains, and sometimes literally to starve to death as a result. It is business as usual in the human race—the powerful using their power for their own benefit, with limited concern for the well-being of those who do not share in that power.

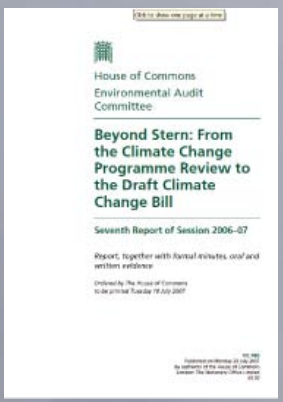
It is important to grasp the magnitude of this problem. To achieve ***'Contraction and Convergence'*** *- that is, to consume only our fair share - we need to cut our consumption of non-renewable resources by more than 80 per cent. On the specific question of greenhouse gases the UK needs to reduce its emissions from about 11 tonnes of carbon dioxide per capita per year to about 1 tonne per capita per year; that is a reduction of around 90 per cent. 2 At first sight this is an enormously depressing conclusion. The task before us is utterly daunting. How can we possibly respond to a problem of this magnitude? However, while in no way disagreeing with the earlier speaker, the purpose of my talk was somewhat different. First, I wanted to counter some of the prevailing misconceptions. We need to be much more clear-sighted that the actions and initiatives taken so far to respond to the problem are utterly inadequate. It is too easy to get the impression that if we change our light bulbs, put our electrical apparatus on standby, or even welcome a few wind turbines we are making a significant difference. All this is what David Mackay calls 'a flood of crazy innumerate codswallop'. His more realistic attitude is: 'If everyone does only a little, we'll achieve only a little'. In short, the technical fixes currently being promoted are insufficient to reduce our greenhouse gas emissions over a reasonable time frame, and would have negligible impact on the excessive consumption of other natural resources. Certainly technological and economic adjustments are necessary and have a role to play. But they are not the solution. Rather we are faced with the need to make a deliberate choice to change our lifestyles and live in a different manner.*



"The Kyoto agreements have been widely dismissed - with a goodly dose of irony - as 'hot air'. Apologists for them offer several arguments in their favour by way of riposte. It has been said, for instance, that they are, above all, a learning process. In the post-2012 period, the world can come up with more universal and rigorous formulae - negotiations for a post-Kyoto regime are already under way; they began in Bali in 2007. The principle of 'common but differentiated responsibility', it is argued, provides a way forward for the world community.

*'**Contraction & Convergence'** puts flesh on this idea - whereby developed countries reduce their emissions first, and radically, with poorer countries following suit as they become richer - is a necessary point of connection between the two types of development. There are different versions of this idea around, but the underlying principle is simple. The developed countries must aim to make large cuts in their greenhouse gas emissions, starting now. Developing nations can increase their emissions for a period in order to permit growth, after which they must begin to reduce them. The two groups of countries will then progressively converge.*

Politics of Climate Change - Anthony Giddens on C&C
"A landmark study in the struggle to contain climate change, the greatest challenge of our era. I urge everyone to read it."
Bill Clinton - 42nd President of the United States of America
http://www.amazon.com/Politics-Climate-Change-Anthony-Giddens/dp/074564693X/ref=sr_1_1?s=gateway&ie=UTF8&qid=1285751136&sr=8-1

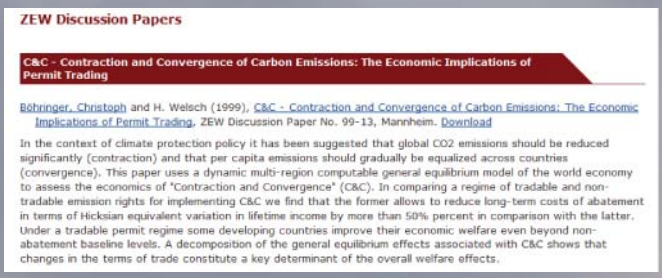

House of Commons
Environmental Audit Committee

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

Seventh Report of Session 2006–07

*"Above all, the Government must draw attention, at home and abroad, not just to percentage targets for the annual emissions in a certain year, but even more to the absolutely crucial issue of the cumulative total budget of greenhouse gases that the world can afford to emit by 2050 if it is to have a reasonable chance of holding global warming to 2o C. In terms of the way in which this cumulative global budget is divided up among individual nations, we recommend that the Government explicitly endorses, and promotes internationally, the '**Contraction and Convergence'** method, or a method similar to it."*

House of Commons Environmental Audit Committee
Beyond Stern: From the Climate Change Programme Review to the Draft Climate Change Bill
Seventh Report of Session 2006–07
http://www.publications.parliament.uk/pa/cm200607/cmselect/cmenvaud/460/460.pdf


ZEW Discussion Papers

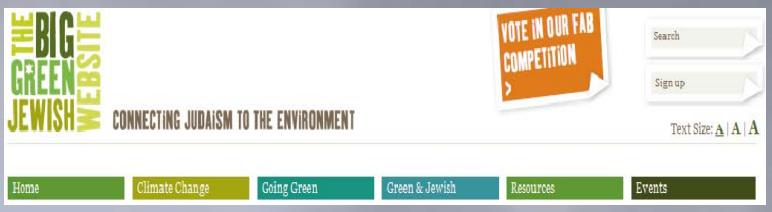
C&C - Contraction and Convergence of Carbon Emissions: The Economic Implications of Permit Trading

Böhringer, Christoph and H. Welsch (1999), C&C - Contraction and Convergence of Carbon Emissions: The Economic Implications of Permit Trading, ZEW Discussion Paper No. 99-13, Mannheim. Download

In the context of climate protection policy it has been suggested that global CO2 emissions should be reduced significantly (contraction) and that per capita emissions should gradually be equalized across countries (convergence). This paper uses a dynamic multi-region computable general equilibrium model of the world economy to assess the economics of "Contraction and Convergence" (C&C). In comparing a regime of tradable and non-tradable emission rights for implementing C&C we find that the former allows to reduce long-term costs of abatement in terms of Hicksian equivalent variation in lifetime income by more than 50% percent in comparison with the latter. Under a tradable permit regime some developing countries improve their economic welfare even beyond non-abatement baseline levels. A decomposition of the general equilibrium effects associated with C&C shows that changes in the terms of trade constitute a key determinant of the overall welfare effects.

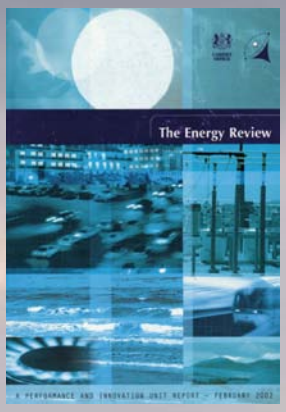
*"GCI has devised a greenhouse gas abatement proposal called **'Contraction and Convergence'** (Global Commons Institute 1997) in which the emphasis is placed not only on a significant contraction of anthropogenic CO2 emissions, but also on an equitable per capita distribution of the resulting global carbon budget. The latter implies a transition to a point (convergence) where future entitlements to emit will have become proportional to population. The uniform per capita allocation of emission rights reflects egalitarianism in the sense that all people have inherently an equal right to pollute. The egalitarian criterion per se has a strong philosophical appeal. However – under contraction of the global carbon budget – it is unlikely to be acceptable for industrialized countries with currently high per capita emissions unless the transition path allows for long-term "smooth" adjustment towards the terminal point. Equity considerations are not only ethically founded; they also conform to the idea that equity might "serve a positive role as a unifying principle that facilitates an international greenhouse warming agreement."*

ZEW discussion paper No. 99-13 C&C - Contraction and Convergence of Carbon Emissions: The Economic Implications of Permit Trading - Christoph Böhringer and Heinz Welsch
ftp://ftp.zew.de/pub/zew-docs/dp/dp1399.pdf



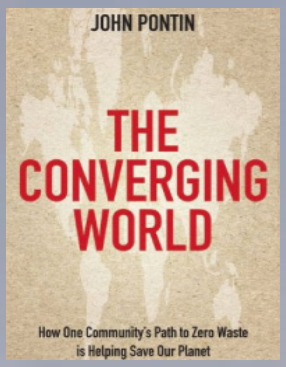
*Aubrey Meyer's visionary '**Contraction & Convergence'** proposition (see 'The Case for Contraction and Convergence,' in David Cromwell and Mark Levene, eds., Surviving Climate Change, The Struggle to Avert Global Catastrophe, London: Pluto Press, 2007, is not only at fundament about piku'ah nefesh, it also in its insistence on an time-ordered reconciliation of all humanity by way of equal carbon entitlement is nothing less than eschatological in its vision of a world community which has arrived at its ethical end-goal. But Meyer's proposition, of course, does not openly speak in these prophetic terms. Utterly grounded in the climate science, its purpose is to find a practical framework by which yearly, incremental carbon reduction can be brought to safe-limits. And its method is social justice. While all humanity will converge to a common carbon point, it will be the rich countries who will have to do almost the entirety of the 'contraction' to meet the overall targets, and in the process – through the tradability of entitlements – enabling the poor and disadvantaged the investment not only for clean sustainable technologies but a belated meeting of their fundamental right to wellbeing. A Jewish community which takes to its soul this ideal of and makes of it a goal of practical implementation is one which is truly fulfilling its time-honoured purpose. It would also in the process be helping to break an actual log-jam. Contraction and Convergence has been much theorised but what is arguably needed now is visible evidence that it can be made to work in a Western environment where the 'sacrifice' has to be made. Normative Judaism through its historic orthopraxy is particular suited to this exercise. Traditionally Jews lived by a very tight code of rules and observations governing every aspect of conduct and behaviour in their daily lives. Large numbers of the religious still do so. Re-orientating these guidelines to a template governing a sustainable life-style would not as an idea be that revolutionary. In the sense that it would actually involve a thorough-going programme of transition to low-energy living it would be as far-reaching as could be conceivably imagined.*

Can Jews help to stop Climate Change?
http://www.biggreenjewish.org/viewarticle.php?id=2499



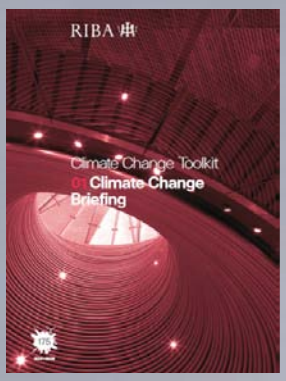
*"The project's outputs will be a key input to the UK Government's future policy on security and diversity of energy supply and on climate change including its response to the Royal Commission on Environmental Pollution (RCEP) report on 'Energy, the Changing Climate. The centrality of carbon and the climate change issue" The UK practices a 'leading' approach to climate change. This approach to climate change implies 3 separate policy time-lines with measures to: - comply with agreed targets; prepare for future targets not yet agreed but probably involving not all countries and operating for limited time periods, and prepare for a world of long-term emission limits agreed between all countries, possibly based on the principles of contraction & convergence. There is no clear dividing line between these phases. Post-Kyoto targets affecting the UK could be finalised by 2005 but agreement might take longer, perhaps a lot longer, and the scale of the next targets is uncertain. Also, it is possible we could be in a world of long-term universal targets by 2010. There is even a remote possibility of moving directly to the final phase from the current position. In the same way, it is far from clear what the scale of future targets will be. The RCEP suggested a 60% reduction for the UK by 2050 would be needed within a '**Contraction and Convergence'** agreement, but the exact figure is very uncertain. All that is certain, whether we move to a contraction & convergence world, as suggested by the RCEP, or follow the guidance produced by the IPCC about global levels of emission reductions that will be needed to avoid dangerous climate change, is that developed countries will need to make substantial cuts from current emission levels over the century ahead."*

PIU Energy Review UK Cabinet Office
http://www.gci.org.uk/Documents/PIU.pdf
http://www.gci.org.uk/Documents/TheEnergyReview.pdf



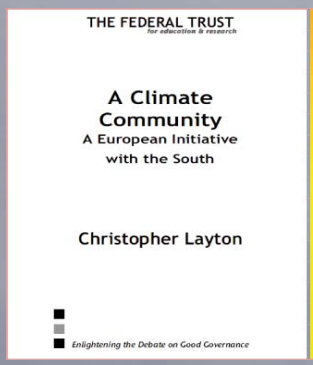
*"Within a few years the principle of "**Contraction and Convergence"** emerged. From the talented hand of Aubrey Meyer a violinist turned environmental campaigner, came a policy intended to curb the worst effects of global warming. Contraction means lessening the use of fossil fuels & all activities that contribute to the pollution that leads to climate change. Convergence is the ethic of sharing. When it comes to Earth's resources, the wealthy northern hemisphere countries have developed the habit of gobbling up oil while the countries of the southern hemisphere are largely sparing in their use of 'black gold'. North & south have diverged. Meyer believes everyone in the world is entitled to the same share of those resources. He has come up with a common-sense one-size-fits-all formula that will ensure it is so. It is the element of social justice in C&C that was an appealing shift in thinking."*

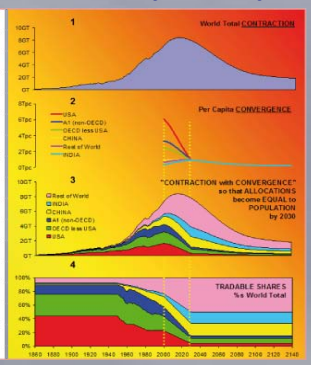
"The Converging World" - John Pontin
http://www.theconvergingworld.org/node/38



*"One approach to reducing GHG emissions is known as "**Contraction and Convergence"**. This involves emissions from industrialised nations reducing (contracting) and emissions from all nations converging to an overall target consistent with stabilising GHG concentrations in the atmosphere. Over time, emissions would contract and converge to an equal share per person. To achieve this equitable distribution, each of us in the UK would need to reduce our average annual carbon dioxide emissions from 10 tonnes to two tonnes. Contraction and Convergence is the science-based, global climate-policy framework, proposed to the United Nations since 1990 by the Global Commons Institute. It is supported by many climate change scientists and policy makers, including the RCEP."*

RIBA Climate Change Toolkit http://www.architecture.com/Files/RIBAHoldings/PolicyAndInternationalRelations/Policy/Environment/2Climate_Change_Briefing.pdf

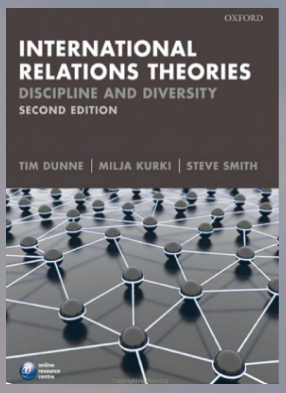




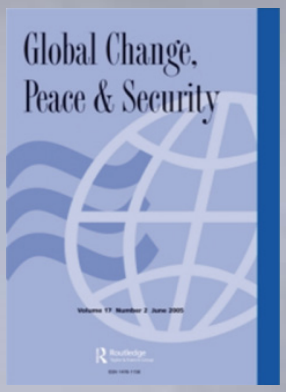
*"This concept, known as '**Contraction and Convergence'**, is familiar enough to cognoscenti of global climate negotiations. It was developed by Aubrey Meyer of the Global Commons Institute and expanded in a recent book. It has been adopted as a policy goal by the major developing regions - India, China and much of Africa - and approved by a resolution of the European Parliament. It has been urged by the Royal Commission on Environmental Pollution. In March 2001 the Chartered Insurance Institute in a research report on the grim effects of climate change bluntly told Government and industry stakeholders 'to show some leadership by coming out in support of the principle of "**Contraction and Convergence"**.*

A European Initiative with South Federal Trust
http://www.gci.org.uk/Documents/Layton_EFT_.pdf

*"**Contraction & Convergence"** developed by the London-based Global Commons Institute, proposes a major contraction of emissions by the rich countries and an eventual per capita convergence by all countries at a level that the atmosphere can safely absorb. This model provides developing countries with some room to grow, while also facilitating a considerable transfer of resources from the high per capita emitters to the low per capita emitters under carbon-trading schemes. In contrast, the Kyoto model is based on targets that individual industrialized countries are prepared to accept, which is a long way short of what is required to protect the Earth's atmosphere. Moreover, some green critics argue that the 'flexibility instruments' introduced into the Kyoto Protocol, such as carbon trading and tree planting, are simply too flexible to guarantee significant reductions of emissions at source, given the weak aggregate targets. They also enable rich nations to 'buy their way out of the problem' rather than set an example for developing countries to follow."*



GREEN THEORY ROBYN ECKERSLEY
International Relations Theories: Discipline & Diversity
Tim Dunne, Milja Kurki, Steve Smith
http://www.amazon.co.uk/gp/product/0199548862/ref=pd_lpo_k2_dp_sr_1?pf_rd_p=103612307&pf_rd_s=lpo-top-stripe&pf_rd_t=201&pf_rd_i=0199298335&pf_rd_m=A3P5ROKL5A1OLE&pf_rd_r=0EAWQ4JYXHTASC05E6PF#_



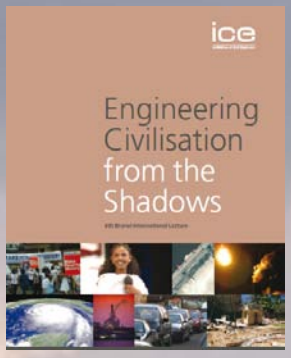
*"The most prominent proposal is that of '**Contraction and Convergence'** [GCI] Under this model, global emissions would be reduced over time, and entitlements to emit would be proportional to population for each country after a transition period—a convergence towards equal per capita allocations across the globe. The underlying ethical position is that each human being has an equal right to the atmosphere, and if access to the atmosphere as a repository for greenhouse gases has to be rationed, then each person should be entitled to an equal share. Industrialized countries would be allocated many fewer permits than their current emissions, and thus have to buy permits from developing countries. India and other developing countries with low per capita emissions are supporting the concept of equal per capita emissions rights, but others with relatively high emissions intensity (such as South Africa) would be unlikely to support this allocation rule. To agree on equity models such as contraction and convergence would thus require a fundamental rethink in rich societies about what their fair share of global resources and the global environment is, to acknowledge that they have been using a far greater share than is rightfully theirs and to drastically reduce their claim on global resources."*

Developing Countries and the Future of the Kyoto Protocol
FRANK JOTZO (Australian National University)

http://frankjotzo.weblogs.anu.edu.au/files/2010/08/Kyoto-future-DC-Jotzo-proof-CPAR170107.pdf

"Atmospheric CO2 levels are reaching critical levels and there must be a strategy to stabilise concentrations to a (relatively) safe level, and with the Kyoto process in limbo, some other process or protocol will be required to arrest the asymmetric pattern of 'Expansion and Divergence' and which leads to a more equitable and less self-destructive use of the earth's resources.

*The "**Contraction and Convergence"** (C&C) Strategy proposed by the Global Commons Institute offers such a process, drawing widespread interest and support, for example from the Indian Government, the Africa Group of Nations and the USA. In December 1997 at the United Nations Framework Convention on Climate Change (UNFCCC) in Kyoto and shortly before they withdrew from the Kyoto negotiations the USA stated: "Contraction and convergence contains elements for the next agreement that we may ultimately all seek to engage in."*



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

Prof Paul Jowitt - President ICE

http://www.gci.org.uk/speeches/BRUNEL_LECTURE_A3_.pdf

GCI founded in 1990 by musician Aubrey Meyer after the Second World Climate Conference, is an independent group concerned with the protection of the "Global Commons".

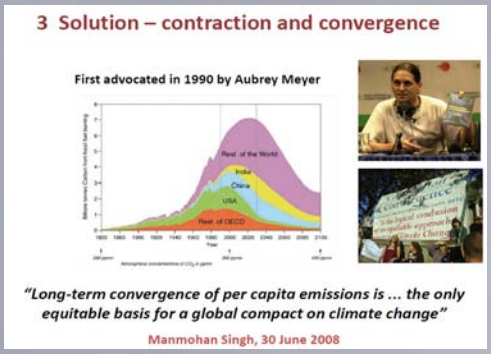
GCI has contributed to the work of the UN Framework Convention on Climate Change (UN FCCC) and the Intergovernmental Panel on Climate Change (IPCC). www.gci.org.uk

*"An equitable basis for allocation of future emissions will be important to obtaining the agreement of transition-economy and developing nations – particularly China and India. Ideally the agreement could adopt "**Contraction and Convergence"** as the model for determining national emissions allocations."*

"RICS Report" - C&C Statement
http://www.gci.org.uk/Documents/RICS_.pdf

*"Many scientists believe that an atmospheric level of 450 ppmv (parts per million by volume) of carbon dioxide should be the initial target for prudence; already we are at 380. For long-term allocation, the "**Contraction and Convergence"** model (C&C) seems appropriate. The name C&C reflects the facts that the annual emissions contract to a safe level, and the per capita shares converge to become equal. C&C has the advantages of simplicity and fairness, gives long-term confidence in emissions reduction and in the short-term can accommodate a variety of 'fixes' as well as facilitating the flow of funds to developing countries."*

"Coping with Climate Change"
CHARTERED INSTITUTE OF INSURERS - Dlugolecki on C&C
http://www.gci.org.uk/Documents/CII_.pdf



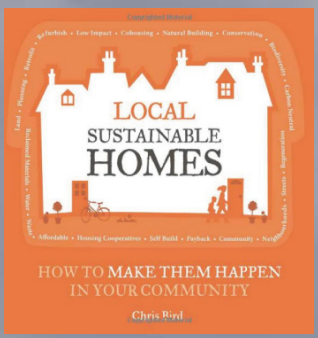
Solution - Contraction and Convergence
First advocated in 1990 by Aubrey Meyer.

"Long-term convergence of per capita emissions is the only equitable basis for a global compact on climate change." Prime Minister India, Manmohan Singh, 30 June 2008

Professor Mike Hulme UEA
CIBSE ANNUAL LECTURE 2010
http://www.cibse.org/content/annuallecture10nov2010slides.pdf

"The Heads of State or Government affirmed that every citizen of this planet must have an equal share of the planetary atmospheric space. In this context, they endorsed the convergence of per capita emissions of developing and developed countries on an equitable basis for tackling climate change."

Fifteenth Summit South Asian Association for Regional Cooperation (SAARC) - Colombo, Sri Lanka - August 2-3, 2008
http://www.gci.org.uk/Support/support.pdf



*"What is "**Contraction and Convergence"** , and what does it mean for housing? The Global Commons Institute proposes a framework for a global reduction in carbon emissions while simultaneously moving towards greater equity and social justice. The framework known as "Contraction and Convergence" consists of reducing overall emissions of greenhouse gases to a safe level [contraction], while every country brings emissions per capita to a level that is equal for all countries [convergence]. In Britain, this means reducing our current per capita emissions of about 12 tonnes down to 1.5 tonnes. Some countries with low per capita emissions might initially be entitled to a rise in their carbon rations and could sell their surplus to richer countries. Once all countries achieve an equal level of emissions - 2030 is the target suggested by the Global Commons Institute - then the carbon ration for all countries would continue to fall to an agreed safe level. "Contraction and Convergence" represents a break from the vicious cycle where affluent industrialized word reaps benefits from fossil fuels while the developing world pays a disproportionate share of the costs in terms of climate change. In its place stands a virtuous circle where everyone benefits from reducing fossil fuel dependency. Based as it is on a philosophy of equal shares within a global limit, the framework could usher in a new era of global justice."*

Local Sustainable Homes:
How to Make Them Happen in Your Community - Chris Bird
http://www.amazon.co.uk/Local-Sustainable-Homes-Happen-Community/dp/1900322765/ref=sr_1_2?s=books&ie=UTF8&qid=1290501854&sr=1-2

Martin Nominates Meyer for 2008 Nobel Peace Prize

Gower MP, Martin Caton, together with six other Members of Parliament from across the House, has nominated Aubrey Meyer for the 2008 Nobel Peace Prize.

Martin explained, "Aubrey Meyer may not yet be a household name, here in Britain, or indeed, in many other parts of the world. Yet his work is absolutely central to the global fight against climate change.

"The Nobel Institute recognised how important the climate change challenge is to the future of our planet last year, when it awarded the prize jointly to Al Gore and the Intergovernmental Panel on Climate Change for raising awareness about this environmental threat.

"We believe that it would, now, be right to recognise the man who has done most to provide an international solution to averting the disaster of global warming.

"Aubrey Meyer realised that we need a comprehensive climate change framework if we are to protect our planet. He founded the Global Commons Initiative in 1990 that developed just such a framework known as 'contraction and convergence'.

"This is the logical way forward. The human race reduces its carbon footprint towards zero at the same time as greenhouse gas emissions on a per capita basis in developed and developing nations converge.

"If his initiative was recognised now then it would send exactly the right message to world leaders as we consider what comes after the end of the Kyoto round in 2012."

Martin's fellow nominators of Aubrey Meyer are: -

Colin Challen MP	(Labour),
Peter Ainsworth M P	(Conservative),
Chris Huhne MP	(Liberal Democrat),
Michael Meacher MP	(Labour),
Joan Walley MP	(Labour) and
Tim Yeo MP	(Conservative)

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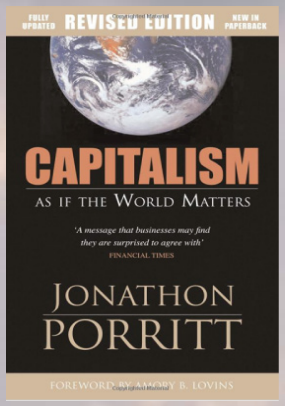
http://www.gci.org.uk/Documents/NObel_Nomination_APPGCC.pdf

*"Stop the blame game! Countries must move away from national interests and have a global view - a globally equitable rate of "**Contraction and Convergence**" that correlates to the 2°C rise path as mentioned in the IPCC AR4."*

International Youth Forum
Shanghai Declaration on Climate Finance 2010

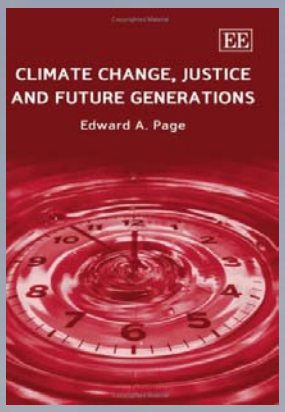
http://www.britishcouncil.fi/projects/climate-shanghai-declaration.htm



*"The assiduous campaigning over the last decade by the Global Commons Institute (based on its idea of "**Contraction and Convergence**", 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 growing readiness of developing countries such as Brazil, Indonesia and Argentina to accept emissions targets for their own counties - not least because they too 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 have to purchase additional carbon credits from nations with low-carbon economies."*

"Capitalism as if the World Matters"
Jonathon Porritt & Amory Lovins

http://www.amazon.com/Capitalism-as-if-World-Matters/dp/1844071936/ref=sr_1_1?s=gateway&ie=UTF8&qid=1285881788&sr=8-1#_



*"**Contraction and Convergence"*** has 3 main components: -

1. each person on the planet is granted an equal right to emit carbon by virtue of their equal right to use the benefits provided by a shared atmosphere. This principle is treated as intrinsic to the architecture of the approach and not a longer-term aspiration as in the case of Kyoto Plus.

2. a 'global ceiling ' for greenhouse emissions is set based on a calculation of the amount the global environment can withstand without dangerous climate change taking place.

3. each country is allocated a yearly 'carbon emissions budget ' consistent with the global ceiling not being exceeded, and calculated according to each country's population size relative to an agreed base year. The name of the approach comes from the notion that over time, it aims to bring about a stabilisation, and later a contraction, in global greenhouse emissions so that they stay below a safe level; and that, in the longer term, developed and developing countries will converge on a roughly equal level of per capita emissions.

*Within this overall approach, a country that wants to emit more than its yearly quota must buy credits from countries that have spare capacity. The country selling the credits is then free to invest the receipts in activities enabling it to develop sustainably. An emissions mechanism is a key feature of all of the proposed successors to Kyoto, but in this version the trading zone covers the whole planet from the outset. The consequence is that '**Contraction and Convergence'** offers a unique mixture of equity and flexibility which does not seek a literal convergence in greenhouse emissions, but rather a convergence in the rights of all countries to make use of the atmospheric commons. Unlike a number of competing approaches, Contraction and Convergence, if fully implemented and complied with, could be expected to reduce the risks of dangerous climate change substantially, although it will not prevent many adverse impacts in the short to medium-term. It also has the merit that it adopts emissions targets based on scientific criteria for protecting inequalities between developing and developed countries, and between generations, relative to its rivals. It will also tend to improve, relative to rival approaches, the position of the worst off since research suggests strongly that very many of the worst off will be members of developing countries in a future world blighted by climate change. Finally, it will be attractive to those who wish to bring as many people as possible to the point where they have enough since the measures it will introduce will benefit many millions of people in developed and developing countries who lead, or will lead, lives lacking in what is needed for a decent life without bringing more than a very limited number of people below the sufficiency level."*

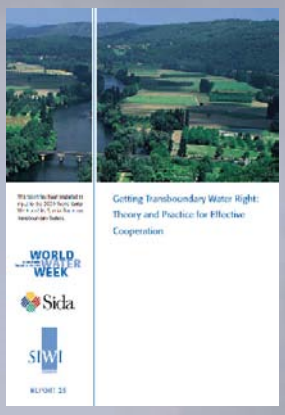
*"**Contraction & Convergence"*** the Global Solution to Climate Change" Meyer Green Books. C&C pioneered by GCI.

Climate Change, Justice and Future Generations - Edward Page

http://www.amazon.com/Climate-Change-Justice-Future-Generations/dp/1847204961/ref=sr_1_1?ie=UTF8&s=books&qid=1285921947&sr=8-1#_

"The One Planet initiative adopts the principle of Contraction & Convergence which means that countries with high per capita emissions will have to reduce their emissions much more rapidly than countries that currently have low per capita emissions. The end result being that per capita emissions from each country will converge at a more equitable level and the global total of emissions will contract. BioRegional will work with partners to agree community specific trajectories. For example, for communities in developing countries a suitable trajectory will have to take into account whether the development is targeted at residents with high impact lifestyles or very low income residents with low carbon emissions."

Common International Targets - ONE PLANET COMMUNITIES
http://www.gci.org.uk/Documents/One_Planet.pdf



The partial success of the "contraction and convergence" model to induce influential climate-change policy-setters to reduce national carbon emissions (GCI 2000) shows that inviting powerful states to being part of the solution rather than part of the problem should be pursued.

GCI (2000) Contraction and Convergence:
A Global Solution to a Global Problem, Meyer 2000

Getting Transboundary Water Right: Theory and Practice for Effective Cooperation

http://www.siwi.org/documents/Resources/Reports/Report25_Transboundary_Waters_with_WWW.pdf

*"The vision of '**Contraction and Convergence'** as a response to climate change, described in this volume, is one that I support. I have also called upon our Church to undertake an ecological audit of some sort; information about how to do this can be found in Part Three. Such local, internal responses are vital if our voice as a Church is to have integrity."*

Sharing God's Planet

http://www.turnbacktogod.com/wp-content/uploads/2009/02/sharing-gods-planet.pdf

"Those who think contraction and convergence is Utopian simply haven't looked honestly at the alternatives."

Rowan Cantuar - The Archbishop of Canterbury

World Council of Churches

A worldwide fellowship of 349 churches seeking unity, a common witness and Christian service

*"Looking towards the upcoming negotiations on the second commitment period, the '**Contraction and Convergence'** Model is an important contribution. It corresponds to the initial vision of the Convention that demands the reduction of CO2 emissions of industrialized countries and leaves space for the development of developing countries. It presents a starting point for deliberations and negotiations directed to finding a justice-based global approach to climate change."*

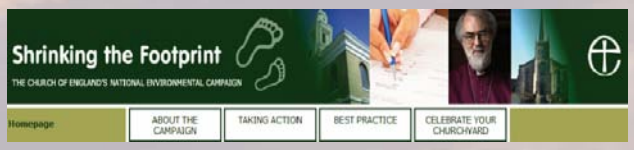
World Council of Churches

http://www.gci.org.uk/Documents/beyondkyoto-nov10-04.pdf

*The film the Age of Stupid offers a good illustration of '**Contraction and Convergence'** so that film-goers come away knowing that there are solutions on offer.*

Creation Challenge CTBI

http://www.creationchallenge.org.uk/?p=165#more-165



Synod as carried - February 2005

That this Synod: -

1. commend Sharing God's Planet as a contribution to Christian thinking and action on environmental issues;

challenge itself and all members of the Church of England to make care for creation, and repentance for its exploitation, fundamental to their faith, practice, and mission;

2. lead by example by promoting study on the scale and nature of lifestyle change necessary to achieve sustainability, and initiatives encouraging immediate action towards attaining it;

3. encourage parishes, diocesan and national Church organizations to carry out environmental audits and adopt specific and targeted measures to reduce consumption of non-renewable resources and ask the Mission and Public Affairs Council to report on outcomes achieved to the July 2008 group of sessions;

4. welcome Her Majesty's Government's prioritising of climate change in its chairing of the G8 and its forthcoming presidency of the European Union;

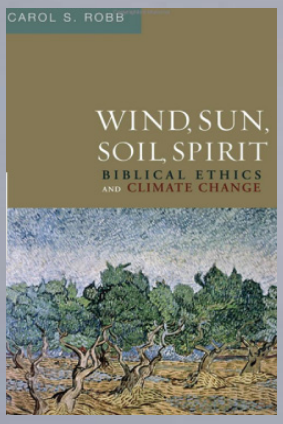
5. urge Her Majesty's Government to provide sustained and adequate funding for research into, and development of, environmentally friendly sources of energy;

6. and in order to promote responsible use of God's created resources and to reduce and stabilise global warming, commend to the consumers of material and energy, the approach of 'contraction and convergence';

7. and to the producers of material and energy systems, safe, secure and sustainable products and processes based on near-zero-carbon-emitting sources.

Church of England National Environment Campaign

http://www.creationchallenge.org.uk/?p=165#more-165



*Before the Framework Convention, the Global Commons Institute in the United Kingdom presented a proposal using 'Contraction' (to a level of global GHG emissions) and 'Convergence' (so that each country converges on the same allocation per inhabitant by an agreed date), aimed at equality in emissions per capita. In this proposal, countries unable to manage within their shares would be able to buy the unused parts of the allocations of other countries. Proposals calling for Contraction and Convergence represent a way to implement per capita equality in the long run. Industrialized countries have nearly locked themselves into a fossil-based infrastructure that requires some lead time to dismantle, even disregarding resistance from power and oil companies. Factors other than population Size need to be taken into account, including geographical and climatic conditions, and intensity of the economy. Contraction in carbon emissions is nevertheless a path for industrialized nations to start down. For "**Contraction and Convergence"** policies to be implemented, nations would need to agree to stay within safe limits of the climate system. A scientifically derived global carbon budget would be the upper limit for all combined emissions, and that budget would be divided among the countries of the world. Industrialized nations would start the contraction process with more of this global budget but would receive fewer and fewer allowances as time goes on. Industrializing nations would begin at a point of much lower levels of emissions but would in the process of development increase those emissions, receiving a larger share of the emissions budget. While the polluting nations would engage in a process of contraction, the developing nations would eventually converge with the industrialized nations at a point that is safely within the absorptive capacity of the atmosphere.*

Wind, Sun, Soil Spirit - Carol Robb

http://www.amazon.com/Wind-Sun-Soil-Spirit-Biblical/dp/0800697065/ref=sr_1_1?ie=UTF8&s=books&qid=1300856818&sr=8-1#reader_0800697065

*"Carbon emissions must be reduced to avoid the worst outcome of the climate change. Developing economies need rapid economic development so that no country, community or individual is too poor to adapt to climate change. The principle of "**Contraction and Convergence'**, conceived by the Global Commons Institute, UK, considers the need to pursue both these actions, reducing global carbon emissions and ensuring economic development of underdeveloped countries simultaneously."*

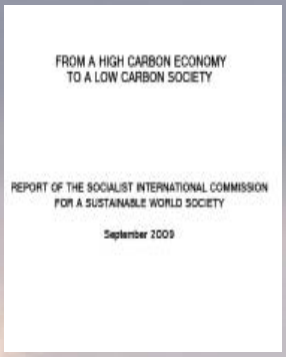
WHO Climate change is a fundamental threat to human health

http://209.61.208.233/linkfiles/Press_Releases_PR-1513.pdf

The principle of *"**Contraction and Convergence"** refers to the emission of gases contributing to the greenhouse effect. A fair and pragmatic approach, it is argued, would be to move gradually towards quotas that would not be indexed on GOP, as is the case in the Kyoto Protocol, but rather on population, while gradually reducing the permitted total towards the 60% reduction commended by the Intergovernmental Panel on Climate Change (IPCC). Such a principle may be seen as a consequence of both the principles of environmental justice and the principles of earth as global commons. The particular problem whether future emissions allocations should be based on a per capita basis, as the so-called '**Contraction and Convergence'** proposal suggests, or on a country basis, might be seen in a different light if humanitarian aid were internationally organized on a basis of each country's ability to pay. The greater duty of rich countries to contribute to such aid might be politically easier to accept than more stringent emission limits imposed on "more polluting" and "past polluting" countries than LDCs (least developed countries), which would also cost "richer" countries more." '**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).
http://www.gci.org.uk/briefings/ICE.pdf

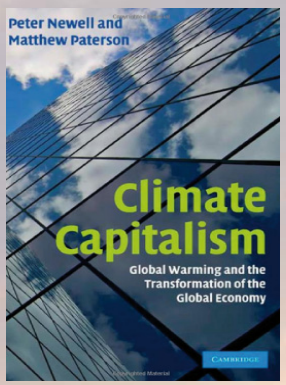
UNESCO - World Commission on the Ethics of Scientific Knowledge Technology The Teaching of Environmental Ethics
6th Ordinary Session Kuala Lumpur Malaysia 16 – 19 06 2009
http://unesdoc.unesco.org/images/0018/001831/183140e.pdf

"Contraction and convergence— sustainability with equity."
UNDP - Human Development Report 2008
http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf



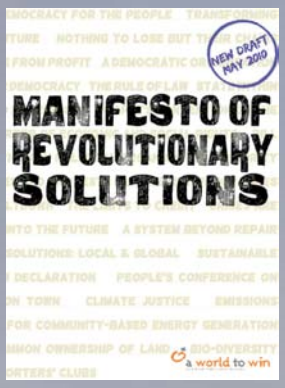
*"Fairness in allocating emissions targets for all the nations of the world will be the key to reaching agreement on a new climate change treaty. One way forward could be a system based on per capita emissions, with national targets based on population, the so-called '**Contraction and Convergence'** formula created by GCI."*

From a High Carbon Economy to a Low Carbon Society: Report of the Socialist International Commission for a Sustainable World Society - September 2009
http://www.gci.org.uk/Documents/Report_SWS_Comm.pdf



*"One way of allocating emissions could be on the basis of the notion of 'contraction and convergence', This idea was developed by a little known London outfit called the Global Commons Institute, led by concert violinist and engaging orator Aubrey Meyer. With colourful diagrams and impeccable logic, Meyer's argument moved relatively quickly from the margins of the debate, dismissed as unrealistically radical to the mainstream. '**Contraction and Convergence'** meant that while overall global emissions would contract to a level consistent with the overall goal of the UNFCCC - to 'prevent dangerous anthropogenic interference with the climate system' - these emissions would converge at a common per capita level. Emissions in the North would thus decline while those in South grew, albeit at a slowed rate. By 2030, per capita emissions across the globe converge, while overall global emissions peak about 2020 and then decline."*

Climate Capitalism: Global Warming and the Transformation of the Global Economy Peter Newell and Matthew Patterson
http://www.amazon.com/Climate-Capitalism-Warming-Transformation-Economy/dp/0521194857/ref=sr_1_3?s=gateway&ie=UTF8&qid=1285883452&sr=8-3#_

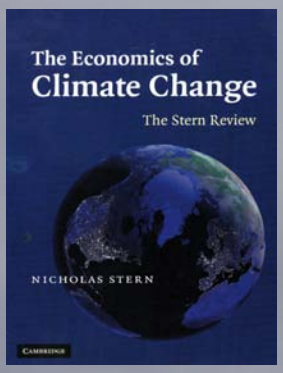


*"To avoid disastrous climate change, it is estimated that carbon emissions must be limited to no more than around 2.7 billion tonnes by 2030 annually, or a per capita allowance of around 0.33 tonnes per year. The only equitable way of achieving this is through contraction and convergence. Countries like Britain need to reduce emissions to 0.33 tonnes per capita per year, while developing countries increase, until their emissions converge up to the same level. The concept of climate justice, which underpins the '**Contraction and Convergence'** idea, needs to be expanded to include justice within countries and not just between them."*

Manifesto of Revolutionary Solutions - A World To Win
http://www.aworldtowin.net/documents/Manifesto.pdf

*"GLOBE International adopted the '**Contraction and Convergence'** analysis in May 1977. Since then, I and my colleagues have campaigned for its acceptance. This pamphlet is a record of those efforts and provides a short summary of the work of the Global Commons Institute (GCI) in this field. I would like to pay tribute to all the GLOBE parliamentarians who have fought so hard for this cause and particularly to the work of Aubrey Meyer and the GCI team on whose brilliant analysis the campaign is based. "Contraction and Convergence" is the only practical and convincing way forward for the world. It is vital that the 08 leaders recognize this and commit themselves to negotiating ahead of COP-4 the global solution for what everyone accepts is the global problem."*

Globe International - Climate Change & the G8
http://www.gci.org.uk/Documents/globe_.pdf



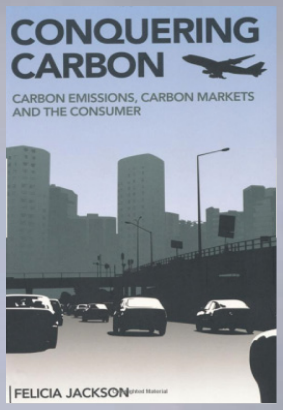
"The notions of the right to climate protection or climate security of future generations and of shared responsibilities in a common world can be combined to assert that, collectively, we have the right only to emit some very small amount of GHGs, equal for all, and that no-one has the right to emit beyond that level without incurring the duty to compensate. We are therefore obliged to pay for the right to emit above that common level. This can be seen as one argument in favour of the 'contract and converge' proposition, whereby 'large emitters' should contract emissions and all individuals in the world should either converge to a common (low) level or pay for the excess (those below that level could sell rights)."

*Source: '**Contraction and Convergence'** ™ (C&C) is the science-based, global climate policy framework proposed to the UN since 1990 by the Global Commons Institute (GCI)*

The Economics of Climate Change - Nicholas Stern on C&C
http://www.hm-treasury.gov.uk/d/chapter_2_technical_annex.pdf

*"The WBGU recommends that emission rights for the green-house gases covered by the Kyoto Protocol be allocated according to the '**Contraction and Convergence'** [C&C] approach. The C&C model (Meyer, 2000) is based upon a fundamentally equal right of all individuals to emit. This can be derived from the human right to equal treatment, and corresponds to the principle of equity under the UNFCCC (Art. 3(1)), and thus corresponds to the egalitarian principle postulated by the Council."*

"Climate Protection Strategies" - WBGU on C&C
http://www.gci.org.uk/Documents/wbgu_sn2003_engl.pdf

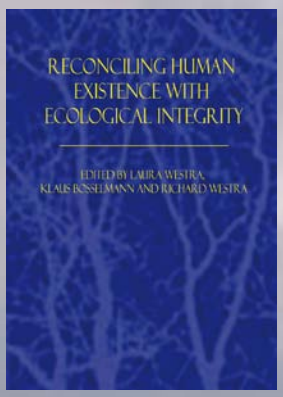


*'**Contraction and Convergence'***

*"One of the key issues underlying all post-Kyoto debate is how to make any international approach equitable. In 1990, Aubrey Meyer, at the Global Commons Institute, proposed the original idea of '**Contraction and Convergence'** as a means of achieving this. The concept was adopted during the original Kyoto discussions by India and in 1997 by the Africa Group of Nations. However, it never made it through the final Kyoto negotiations. The central concept of Meyer's proposal is that all GHG emissions should be, capped at the level needed to prevent dangerous climate change within a framework that includes every country and that emission rights should be allocated to each country on a per capita basis."*

Felicia Jackson - Conquering Carbon:
Carbon Emissions, Carbon Markets and the Consumer

http://www.amazon.com/Conquering-Carbon-Emissions-Markets-Consumer/dp/1847734251/ref=pd_bxgy_b_img_a



*'**Contraction and Convergence'** (C&C) is a global framework for reducing GHG emissions to a safe level. C&C was designed by the Global Commons Institute for the Intergovernmental Panel on Climate Change and the UN Framework Convention on Climate Change. Longtime industrialised countries, which have produced the bulk of greenhouse gases, bear a much larger burden in preventing climate change; therefore they will have to play a leadership role, both regarding drastic emissions reduction and development of low- or no-carbon technologies to provide room to poor developing countries for economic development within the boundaries of a global carbon regime. C&C is based on the science of limits and the principle of carbon justice, striving for convergence to equal-per-capita emissions rights, assisted by a medium-term, multistage approach accounting for differentiated national capacities. "Contraction" means global emissions are reduced in total over time so the concentration of greenhouse gas in the atmosphere stabilises at a level low enough and soon enough to prevent dangerous rates of climate change from taking hold. "Convergence" means that subject to this global limit, initial entitlements to emit carbon are distributed to all the countries or regions of the world with an agreed process of convergence to equalise per capita emissions entitlements across the planet. During contraction and convergence, entitlements are assumed to be tradable and hence must be capped, with quotas initially distributed to the government, which then auctions them to users who are allowed to re-sell them. C&C also could work using the carbon tax rather than cap and auction-and-trade."*

Climate change and the energy crisis Alleviating climate change
Robert Goodland and Simon Counsell
http://www.gci.org.uk/Documents/Goodland_Counsell.pdf

Contraction and convergence

*"In order to picture which development paths might bring the world to a greater level of resource justice, it may be useful to employ the model of '**Contraction and Convergence'** (Meyer 2000). This model schematically envisages two different development paths: one for industrial countries, one for developing countries. All nations of the world would adjust their use of resources so that in half a century from now they no longer overstretch the absorption and regeneration capacity of the biosphere. The model assumes no nation has the right to a disproportionate share of the global environment, so each one endeavours – though with individual variations – to achieve the common goal of material and energy consumption compatible with the demands of other countries, while remaining within the carrying capacity of the biosphere.*

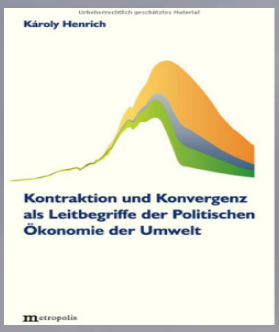
*In the end, there is no justification for any other distribution of globally important resources; the right of all nations to self-defined, self-determined and equal development permits it only to make claims that are socially and ecologically sustainable at a global level. This is what the '**Contraction and Convergence'** argument inspired by Kant comes down to: institutional patterns of resource consumption should be considered unjust if they rest upon rules which cannot in principle be adopted by all other nations. Consequently, the model requires that the industrial countries contract – that is, that they reduce their consumption of resources drastically. Resource justice in the world crucially depends on whether the industrial countries are capable of retreating from overconsumption of the global environment.*

The example of greenhouses gases may serve to illustrate the path of shrinking resource consumption. By the middle of the century, the over-consumers must reduce by 80% to 90% the strain they put on the atmosphere by burning fossil fuels, in order to do justice to the precepts of both ecology and fairness. It goes without saying that this figure refers to the global North, i.e. the consumer class in the countries of the South is placed under the same responsibility. On the other hand, developing countries appear in the model as tracing an upward curve in resource consumption. First, poorer countries have an unquestionable right to attain at least a 'dignity line' of resource consumption which should apply to all citizens of the world. Without access to kerosene or biogas, without an energy and transport infrastructure, it is hard to satisfy even the basic needs of modern human life.

Moreover, each country will try to achieve different images and forms of a prosperous society – an ambition that in turn requires access to resources such as energy, materials and land. However, this upward movement ends at an upper line of ecological sustainability for all; natural limits set the framework for justice. As it happens, a number of emerging economies are already about to hit that limit in the coming decade.

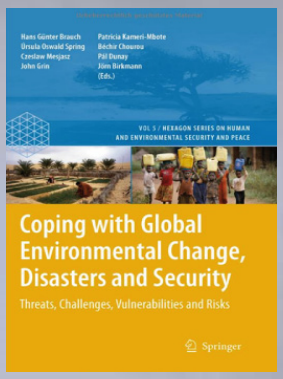
*The conceptual model of '**Contraction and Convergence'** thus combines ecology and justice. It begins with the insight that environmental space is finite, and it ends with a fair sharing of the environment by the citizens of the world."*

Rethinking Development in a Carbon-Constrained World
Edited by Eija Palosuo for Finnish Foreign Affairs
http://www.gci.org.uk/Documents/Paluso_Finland.pdf



*"Expansion and Divergence have characterised human use of nature throughout history. Humankind has increasingly expanded those parts of the ecosphere dominated, disrupted and destroyed by it. At the same time, levels of natural resource consumption have increasingly diverged within human societies. In response to problems emerging on this development path, the '**Contraction and Convergence'** approach has now been postulated for the specific field of climate sustainability. This approach can in fact be applied as a general principle. An overarching environmental policy goal, it would imply reducing excessive overall levels of natural resource consumption while at the same time harmonizing per capita consumption levels worldwide. However, fundamental structural and development circumstances - in the realms of demography, economy, technology, politics and social psychology stand in the way of realizing this concept of sustainability."*

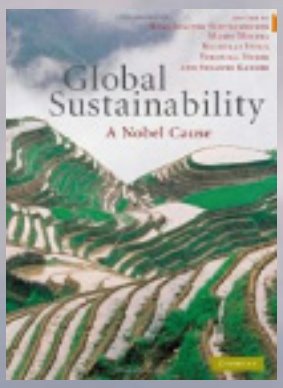
Kontraktion und Konvergenz als Leitbegriffe der Politischen Okonomie der Umwelt - Karoly Henrich
http://www.amazon.co.uk/gp/reader/389518604X/ref=sib_books_pg?p=S002&keywords=contraction+and+convergence&ie=UTF8&qid=1300271320#reader_389518604X



"Contraction refers to the 'full-term event' in which the future global total of greenhouse gas [GHG] emissions from human sources is shrunk over time in a measured way to near zero-emissions within a specified time-frame. The example shows 90% by 2100. Calculating future emissions contraction on the basis of concentrations and sink evidence is a non-random way of responding to the objective of the UNFCCC. Convergence refers to the full international sharing of the emissions contraction-event, where the 'emissions-entitlements' for all countries result from them converging on the declining global per capita average of emissions arising under the contraction rate chosen. Converging at a rate to be agreed - the example shows 2030 - is a non-random way of responding to the principle of 'equity' in the UNFCCC, whilst still meeting its objective." GCI

Coping with Global Environmental Change, Disasters & Security: Threats, Challenges, Vulnerabilities and Risks
Hans Günter Brauch, Úrsula Oswald Spring, Czeslaw Mesjasz

http://www.amazon.co.uk/Coping-Global-Environmental-Disasters-Security/dp/3642177751



*'**Contraction and Convergence'** proposes that equalizing global per-capita emissions across countries would ensure equity in the global climate change mitigation process. It supports climate change negotiations that aim to equalize per-capita emissions at a future date, with the levels of permissible global per-capita emissions and the different years by which the emissions have to be equalized varying according to several formulae. This would allow citizens of all countries, regardless of size or level of development, equal space in the atmosphere, and thus equal responsibility to mitigate. While there are concerns that contraction and convergence may provide incentives to high population growth rates, it is entirely feasible, and indeed widely proposed, to place a limit on population beyond which no further entitlements would be granted. Further, countries with high population growth rates would still have to provide resources for their growing populations. Therefore, the economic incentive to encourage high population growth rates may not even exist."*

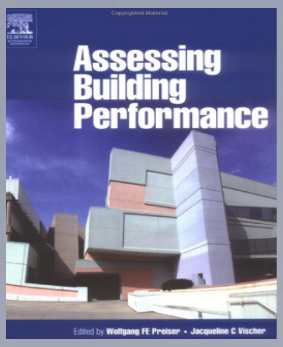
"Global Sustainability - A Nobel Cause" on C&C

http://www.amazon.com/Global-Sustainability-Schellnhuber-Hans-Joachim/dp/0521769345/ref=sr_1_1?s=gateway&ie=UTF8&qid=1285747266&sr=8-1

*That this House welcomes the recent decision of the Synod of the Church of England to support '**Contraction and Convergence'** as the overarching framework to tackle climate change; further welcomes the comments of the Honourable Kalonzo Musyoka, Minister for Environment and Natural Resources, Kenya, given at a meeting for African Environment Ministers in Nairobi in February, supporting contraction and convergence; congratulates Aubrey Meyer, founder of the Global Commons Institute, which formulated the concept of contraction & convergence, on receiving the Climate Change Champion Award made by the Corporation of London, for his work in attracting the support of many government and international agencies for '**Contraction and Convergence'**; and calls upon the Government to seek, during its presidency of the G8, to advance the international effort to avert the dangers of climate change by promoting the constitutional framework of contraction and convergence, which embodies the principle of equal rights to the global commons. [Total signatures: 168].*

Early Day Motion 961 G8 AND CONTRACTION & CONVERGENCE

http://www.parliament.uk/edm/2004-05/961



Contraction 2000-2100 for 450 ppmv atmospheric concentration with Convergence equal per capita shares globally by 2030 www.gci.org.uk

Assessing Building Performance - W F E Preiser, J C Vischer
http://www.amazon.co.uk/Assessing-Building-Performance-Wolfgang-Preiser/dp/0750661747/ref=sr_1_1?s=books&ie=UTF8&qid=1302515427&sr=1-1

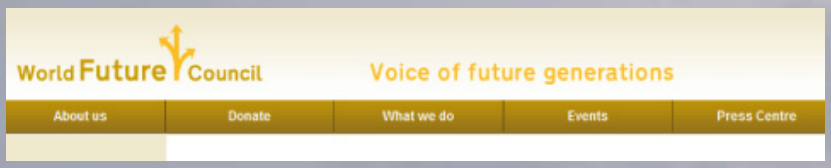
CONTRACTION AND CONVERGENCE
An exemplary global framework

*'**Contraction and Convergence'** is a strategy aimed at capping and then reducing carbon dioxide emissions (contraction) and by giving an equal entitlement of the capped carbon to every adult, ensuring that all get fair shares of this capped global carbon allocation (convergence).*

Climate change, poverty, war R Stott

JOURNAL OF THE ROYAL SOCIETY OF MEDICINE
Volume 100 September 2007

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

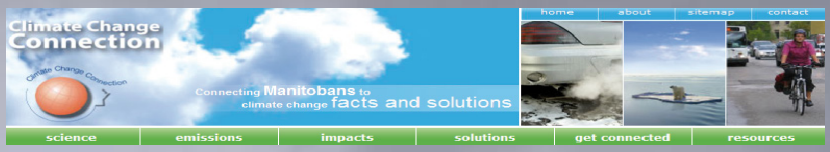


*"There is now little doubt that climate change has become a reality. Glaciers are melting all over the world. Weather patterns are becoming more erratic. The IPCC forecasts increases of global mean temperatures of up to 5.8 degrees this century and sea level rises of up to one meter. Half the world's people live within 50 km of seashores and their lives will be severely affected by flooding. Up to a million species of plants and animals could be lost due to climate change. Are viable transitional scenarios available to deal with climate change? Can the widely acclaimed '**Contraction and Convergence'** scenario be implemented through international agreement? Can emissions trading be made to work and what are its limits? Could biological and technical carbon sequestration be part of a transitional strategy over the coming decades? Is adaptation to rather than prevention of climate change a realistic scenario?"*

World Future Council
http://www.worldfuturecouncil.org/48.html

What does "Converging World" mean?

*The Converging World concept is large and complex. The converging aspect derives partly from the "**Contraction and Convergence'** principle proposed by Aubrey Meyer of the Global Commons Institute (see Schumacher Briefing No 5), which sees, across the world, an equal per capita right to emit 'carbon'. The Converging World idea goes beyond carbon trading, although this is a fundamental aspect requiring emergency attention. It is a vision of a world where everyone has a fair and equal share of all the resources that the Earth can easily provide without jeopardising its potential to support life in all its diversity. It is also a world where everyone has a fair and equal share of, and access to, human created resources such as knowledge. The vision extends to an indiscriminate right, and equal access, to the functions of our institutions for justice, health, education and security. In this converging worldview environmental issues are inseparable from social justice.*

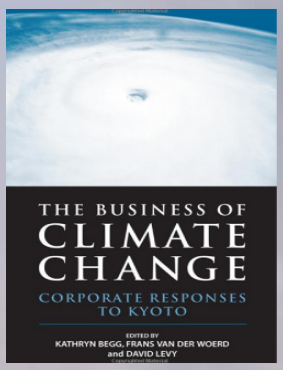


Go Zero - The CONVERGE PROJECT

http://www.climatechangeconnection.org/Solutions/Contraction-andconvergence.htm

*'**Contraction and Convergence'** is a concept for international agreement on greenhouse gas reduction. It has been gaining ground because it outlines a way to fight climate change that is fair and equitable for everyone on the planet. This YouTube video on C&C is from the film The Age of Stupid.*

Connecting Manitobans to Climate Change Facts and Solutions
http://www.climatechangeconnection.org/Solutions/Contractionandconvergence.htm



*In its position paper for COP-7, UNEPFI commends "**Contraction and Convergence'** [C&C] to policy makers as a method to tackle the risks for the financial sector, including the Insurance industry.*

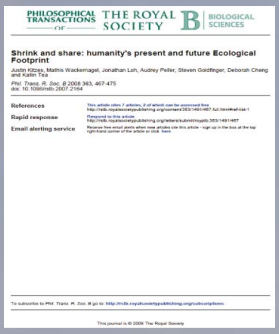
The Business of Climate Change: Corporate Responses to Kyoto Kathryn Begg, Frans Van Der Woerd, David Levy
http://www.amazon.co.uk/Business-Climate-Change-Corporate-Responses/dp/1874719578/ref=sr_1_1?ie=UTF8&qid=1302518864&sr=1-1

*Re-conceiving growth: '**Contraction and Convergence'***

The dominant development model, based on the unlimited meeting of consumer wants leads inexorably to overconsumption. Yet the continued physical expansion in the global reach of commodity supply systems means that consumers in developed countries continue to perceive resource flows as bountiful, and develop no sense of limits to consumption. Whether as consumers or citizens, people in industrialized economies show no awareness that production systems are ecologically flawed or constrained. In order to achieve fair shares of the global resources available, theories of growth need to be transformed to theories of contraction and convergence, to balance the increases in energy and material use that are needed to raise living conditions among the poor against contractions among the wealthy and super-rich. There is a growing interest in ideas of 'degrowth' (décroissance). Degrowth is a term created by radical critics of growth theory intended to make space for alternative projects as part of post-development politics. Degrowth is (like sustainability) an ethical concept of how the world needs to change. Proponents of contraction want 'to create integrated, self sufficient and materially responsible societies in both the North and the South'.

Re-conceiving growth builds on long-standing arguments about the need for, and feasibility of, 'zero-growth', notably perhaps Herman Daly's work on 'steady-state economics'.108 Back in 1977, Daly's 'impossibility theorem' pointed out that a high mass-consumption economy in the US style was impossible (at least for anything other than a short period) in a world of four billion people. Since then, lockin to progressivist growth economics has if anything deepened, and so too have the risks that sustainability thinking seeks to address. The idea of a contraction-based society poses a challenge: to find alternative models for the creation of human welfare from industry, technology and nature. Poor countries need to be able to industrialize and grow to meet the welfare needs of their people, but they need a way of doing this that avoids the world-busting models of past industrialization. Rich countries need to see ways forward that maintain quality of life, while shedding the habits and structures that damage the biosphere & corner an unfair share of the resources that are needed by the world's poor.

IUCN - Transition to Sustainability: Towards a Humane and Diverse Worlds J Jeanrenaud W M Adams
http://www.gci.org.uk/Documents/IUCN.pdf



PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B BIOLOGICAL SCIENCES

Shrink and share: humanity's present and future Ecological Footprint

Justin Kitzes, Mathis Wackernagel, Jonathan Loh, Audrey Peller, Steven Goldfinger, Deborah Cheng and Kallin Tea

Phil. Trans. R. Soc. B 2008 363, 467-475
doi: 10.1098/rstb.2007.2164

References This article cites 7 articles, 2 of which can be accessed free
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*"The current state of global overshoot highlights the need for analysis and strategy to bring the human economy within the limits of the biosphere. Similar concerns about global emissions of carbon dioxide have led to a conceptual framework for reducing these emissions known as '**Contraction and Convergence'.** First described by the Global Commons Institute (Meyer 2000), contraction and convergence proposes a framework for stabilizing atmospheric carbon dioxide concentrations through two complementary approaches:*
Contraction. The need to reduce humanity's carbon dioxide emissions to a level that will result in the eventual stabilization of atmospheric carbon dioxide at an agreed-upon level (e.g. 550 ppm).
Convergence. The need to collectively negotiate how this reduction in greenhouse gas emissions will be allocated between nations.

Since its initial debut, the contraction and convergence framework has gained increasing recognition and sponsorship from decision makers, particularly in Europe. Influential organizations such as the European Parliament have passed resolutions using contraction and convergence as a basic principle (e.g. European Parliament 1998)."
Shrink and share: humanity's present and future Ecological Footprint Justin Kitzes, Mathis Wackernagel, Jonathan Loh, Audrey Peller, Steven Goldfinger, Deborah Cheng and Kallin Tea
http://www.gci.org.uk/Documents/Footprint_RS_.pdf

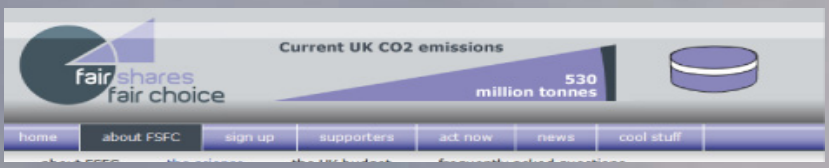
WSPA's Recommendations:

• The economy has to be conceptualized not as end in itself, but as instrumental to achieve a healthy environment and wellbeing for life on earth. Systematic recognition is needed of the social/ethical dimensions of sustainability, e.g. animal welfare.

• Food production needs to move away from industrial, multinational systems towards moderate- and small scale, humane models with local supply chains and markets.

*• The rise of the consumption of animal proteins has to be halted by '**Contraction and Convergence'**, thus ensuring a fair share. If a modest increase in consumption of animal products by the poorest people in developing countries is the best way to improve their nutrition, this should be facilitated, and offset by greater reductions in consumption by those better off and better fed.*

World Society for the Protection of Animals Civil Society Consultation Conducted by the UN Non-Governmental Liaison Service For the UN Secretary-General's High Level Panel on Global Sustainability http://www.un-ngls.org/spip.php?page=agsp&id_article=3319



"Minimising man-made climate change is almost certainly the biggest challenge faced by humans. Some impacts are happening right now (often in parts of the world least equipped to deal with them) because of greenhouse gases already released into the atmosphere. We have to act quickly and decisively to avoid really dangerous climate effects. Developed by Aubrey Meyer of the Global Commons Institute, the Contraction & Convergence model is a widely accepted global framework for reducing greenhouse gas emissions (GHGs) to safe levels in a socially just way. The model provides a global 'carbon budget' with annual reduction targets for CO2 emissions, based on levels considered safe to avert dangerous climate change. Once in the atmosphere, GHGs can take up to 200 years to decay, so to stay within safe levels we'll have to continue to reduce, or 'contract' emissions year-on-year, to near zero by around 2080."
Fair Shares, Fair Choice supports the principle of 'A globally fair and safe carbon share for everyone'
http://www.fairsharesfairchoice.com/index.asp

*"What is Eco-affluent Convergence? Eco-affluent convergence is the merging of two ideas, eco-affluence and contraction and convergence. The term was created by Green Frontier's founder, Craig Embleton, to describe the mechanism by which everyone can lead sustainably affluent lifestyles as we wean ourselves of our fossil fuel addiction. Eco-affluence James Martin talks about a globally sustainable civilisation in his book "The Meaning of the 21st Century". He writes that …"we can have spectacularly affluent civilizations where we don't use more resources than the environment can provide. I call this eco-affluence. There can be new lifestyles of the grandest quality that heal rather than harm our global ecosystem". Contraction and Convergence Contraction and convergence is a term used to describe the mechanism for reducing global emissions of greenhouse gases which contribute to global warming. It is based on the principles of equity and survival, whereby global carbon emissions reduce as the per capita emissions across the global population converge to the same level. '**Contraction and Convergence'** is the brainchild of Aubrey Meyer, founder and director of the Global Commons Institute (GCI). The use of the word "contraction" to describe the framework by which we get to a better state goes against the hopes and aspirations of the people who will need to "contract" as it implies a lesser lifestyle. We can wean ourselves off our current addiction to fossil fuels and concurrently move to a higher level of living. Eco-affluent Convergence Putting the two ideas together, to provide sustainably affluent lifestyles for everyone on Earth that are rich in terms of everything that actually counts, we have a mechanism called eco-affluent convergence."* http://www.greenfrontier.org/eco-affluent-convergence/

*The Findhorn Foundation community were privileged to attend a keynote address to open an exciting training programme, Global Climate Change and the Sustainable Energy Revolution, hosted by CIFAL Findhorn. Our dynamic May East, Chief Executive of CIFAL Findhorn, organised for Aubrey Meyer to share his address with the whole community. Meyer is best known for his strong voice on a global climate policy framework, '**Contraction and Convergence'**. This approach was first presented to the United Nations in 1990. Having not met him before, little did I realise that the violinist serenading the arriving guests was none other than our esteemed guest speaker! It was with delight that I saw him put down his violin and pick up the microphone, and the delight didn't stop there, Aubrey continued to jump between technical climate change campaigner and concert violinist through his hour-long presentation. He told the audience about his first ahaa moment in making a commitment to saving the planet. One night when kissing his four year old daughter good night she asked him, was the planet really was dying? Staggered by the question, he responded by telling her don't worry, we'll sort it out. In that moment his life changed. It was his commitment to his daughter that spurred him on and motivated him to leave his musical career and find solutions to global climate change.*

FINDHORN http://www.findhorn.org/2007/09/aubrey-meyer-on-climate-change/

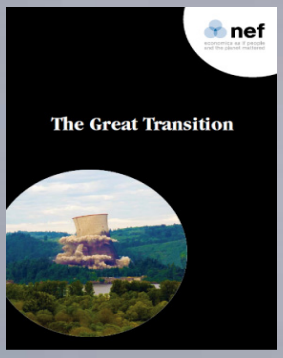
*An international commitment to equally sharing our right to the atmosphere, and our right to pollute it, alongside strict targets for emissions reductions, will go a long way to ensuring the viability of life on earth for future generations. The '**Contraction and Convergence'** mechanism works in line with the principle of sharing and provides the necessary framework for CO2 sustainability.*

How to Share The World's Resources: A Proposal
http://www.stwr.org/economic-sharing-alternatives/how-to-share-the-worlds-resources-a-proposal.html

If you are concerned about global climate change, you should set yourself a target. However, it is far from clear how to fix the right level.

*One school of thought, based around '**Contraction and Convergence**', suggests that if everyone moves globally towards 2 tCO2e, the CO2 concentration in the atmosphere might stabilise around 550 ppm (parts per million), which could lead to a 2 °C rise in average temperatures. By all countries having the same target, this would be inherently fair. But, increasingly, this figure of 550 ppm is seen as too high, with the instability of climate caused at that level unacceptable. A new figure of 350 ppm has been proposed, but this would mean eliminating substantially all anthropogenic carbon dioxide emissions by 2030. GCI has information on contraction and convergence.*

Open University - Setting a personal target - C&C
http://labspace.open.ac.uk/mod/oucontent/view.php?id=426568&printable=1



*"We assume a global 'deal' based on '**Contraction and Convergence**' to limit, reduce and maintain total global emissions within defined limits (the contraction); we also assume that the UK's total share of emissions progressively comes into line with its fair global share (the 'convergence'), with significant transfer payments to developing countries during the process to facilitate their sustainable development."*

The Great Transition NEF Recommendation: -

*"Agree a global fair deal on climate change with appropriate '**Contraction and Convergence**' targets to avert dangerous climate change, reflecting the UK's 'fair share' of total sustainable carbon emissions."*

The Great Transition A tale of how it turned out right
New Economics Foundation
http://www.ourfutureplanet.org/newsletters/resources/nef%20The_Great_Transition.pdf

Contraction & Convergence and Shrink & Share

*'**Contraction and Convergence**' (C&C) as proposed by Aubrey Meyer from the Global Commons Institute (Meyer 2001) 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".*

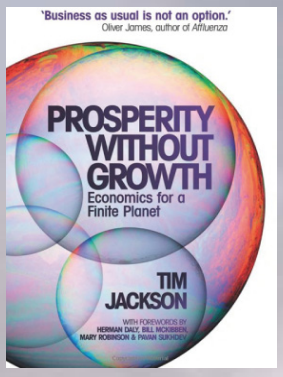
Although C&C focuses exclusively on CO2 emissions, which are responsible for about 50 percent of humanity's Ecological Footprint, the C&C framework can be extended to other demands on the biosphere.

The extension of C&C to all demands on the biosphere is referred to as Shrink & Share. Shrinkage would occur when nations, organizations, and individuals reduce their footprints so that consumption, production, investment, and trade activities do not exceed the regenerative capacity of the globe's life-supporting ecosystems. Sharing would occur if these reductions were allocated in ways considered equitable by the participants. This includes many possibilities: for example, it might imply that consumption, production, investment, and trade patterns change such that the per capita footprints in various nations deviate less and less from each other, that there is a more equitable distribution of the rights to use resources, or that resource consumption rights are more closely tied to the resources a region or nation has available. Further discussion on Shrink & Share and how this can support risk assessments and ecoinsurance schemes can be found in Lovink et al."

Living Planet Report WWF 2004
http://www.gci.org.uk/Documents/LPR_WWW_2004_.pdf

The Global Commons Institute's famous proposal calls for a "Contraction and Convergence" (GCI, 2003) to a global mean of carbon emissions per capita far below a ton, which would be needed for atmospheric CO2 concentrations to stay within 450 ppm. However if an energy or carbon threshold for human needs can be estimated, there is no reason to believe it remains constant over time: our goal is to question the immutability of this relationship.

From constraint to sufficiency: The de-coupling of energy and carbon from human needs, 1975–2005
Julia K. Steinberger, J. Timmons Roberts
http://www.gci.org.uk/Documents/EE_SteinbergerRoberts_2010_DecouplingEnergyCarbonHumanNeeds_.pdf



*'**Contraction and Convergence'** (C&C) refers to an approach originally proposed by the Global Commons Institute (GCI) but now widely agreed to represent a fair and meaningful way of achieving stabilization targets. Overall emissions 'contract' to a level compatible with the stabilization target, and per capita emissions 'converge' towards an equal per capita shares of the overall emissions budget. Very simply, C&C is a way of transparently structuring future negotiations on the understanding that prosperity is governed by ecological limits on the one hand and fair shares on the other." For more information on the approach see for example Meyer 2004, See also briefings by the Global Commons Institute, online here and here*

Prosperity Without Growth: Economics for a Finite Planet
Tim Jackson http://www.amazon.com/Prosperity-Without-Growth-Economics-Finite/dp/1849713235/ref=sr_1_1?ie=UTF8&qid=1299161576&sr=8-1#_

Contraction and Convergence

*Climate change is driven, and its impacts are experienced, to different extents by different populations across the globe. Total emission figures mask a huge heterogeneity in per person energy consumption which varies widely both within national borders and between them. Equity, including equality of opportunities for development, must therefore be the central pillar around which climate change policy is developed. In response to these discrepancies, '**Contraction and Convergence'** presents a framework in which finite bio-spherical capacity is equitably shared amongst all of the earth's inhabitants, thus placing the importance of per capita emissions centre stage. This framework recognizes the right of the developing world to develop economically, and that their per capita emissions will rise as a result.*

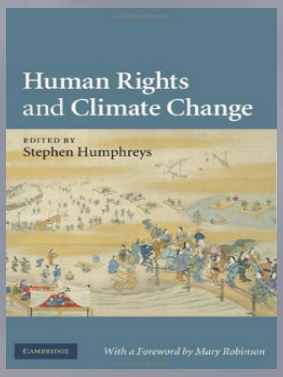
*On the other hand the emissions of the developed world will have to contract, with the overall objective of arriving at an equitable global per capita emission level. Population growth is fundamentally relevant to this model, since total population size will largely determine the cap at which total safe emissions can be set. Again the complexity of this issue is crucial to grasp: in the short term, it will be in the interests of individual countries to have large populations to capture as large a share of the global emissions as is possible. At the global level the reverse is the case; the larger the global population, the smaller the per capita global emission level will be. PSN will promote increased understanding of the links between population and climate change and advance approaches, such as '**Contraction and Convergence'**.*

This mirrors the PSN 'Population – Consumption Coin' concept by recognizing the twin rights and responsibilities of the developed and developing worlds.

The Population & Sustainability Network http://www.populationandsustainability.org/49/background-and-concept/background-concept-of-the-network.html

*"Humanity as a whole is already consuming more resources than the earth can in the longer term provide. Therefore consumption in the richer countries will have to be reduced to allow those in poorer countries to attain a decent lifestyle. Consumption will inevitably grow in developing countries as they industrialise and urbanise, even if they take on board the need for sustainable lifestyles. It will be up to wealthier communities, principally in developed countries, to moderate their lifestyles and adopt consciously green practices. We already know that what one country considers acceptable would be considered far from acceptable to another. How should the level be set? By whom? On what criteria? The concept of '**Contraction and Convergence'** (C&C) was conceived by the Global Commons Institute in the early 1990s. The principle is that the rich should consume progressively far less resources per capita than before, while the poor consume rather more than they did, so we converge towards a common 'fair share' for each, which the planet can sustain. We support this principle of C&C or global equity, but it must take account of the plain arithmetic fact that every additional person reduces everyone else's sustainable share. We have therefore insisted on including a population base year at which the ultimate target figures, notably for sustainable carbon emissions per person, should be calculated country by country. Without it, countries with high population growth would consume ever more, at the expense of those who had succeeded in restraining or reducing their numbers. We were delighted when Kofi Annan endorsed our view in his Chairman's Key Recommendations following a conversation we had with him after a workshop we gave at the Global Humanitarian Forum in June 2009." -*
POPULATION MATTERS
http://populationmatters.org/thinking/sustainable-lifestyles/sustainable-lifestyle/

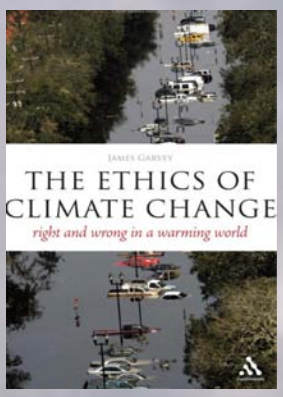
*"The best known rights-based approach to climate change mitigation is the '**Contraction and Convergence'** (C&C) framework presented by GCI at the second Conference of the Parties to the UNFCCC in 1996. The idea, very briefly, was to articulate a long-term mitigation strategy that, while reducing the overall amount of GHG in use over time, would also lend toward equalising GHG emissions per person on a global scale. In such a regime, as overall global emissions dropped, the fall would be more precipitate in wealthy countries, while usage in poorer countries would continue to rise for a period in line with their greater development needs - toward convergence between rich and poor countries at some point in the future. Initially GCI abjured the term ' rights' in reference to C&C, because they regarded the atmosphere as a global commons that 'cannot be appropriated by any state or person. Today, however, GCI claims that C&C 'establishes a constitutional, global-equal-rights-based framework for the arrest of greenhouse gas emissions.*



This new formulation appears to be in line with a general shift toward the language of rights in the climate change arena. Whereas the 'rights' at issue in models such as C&C amount to speculative universal 'rights to emit' GHGs, with no obvious basis in human rights law, they might be framed as deriving from the 'right to development', which is mentioned somewhat obliquely in the UNFCCC. Such a derivation would depend on demonstrating that 'subsistence emissions' were in fact required to achieve basic human rights, a claim that is at least plausible.

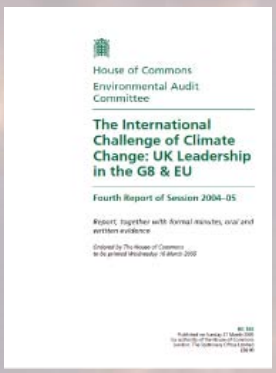
The right to development is a difficult and somewhat confusing notion. In international law, it has had, since 1986, declaratory (non-binding) status, and has been a subject of protracted and sometimes polarising discussion within the United Nations. But whatever its doctrinal status, discussion of the right to development has evolved with time, albeit rather as a space for negotiating the differing interests of different parties in the international system rather than as law in the ordinary sense. For many, particularly in countries most vulnerable to climate change, it still provides a natural hook for assessing the rights implications of climate change and the policy premises that should underlie solutions."

Human Rights and Climate Change - Stephen Humphreys
http://www.amazon.co.uk/Human-Rights-Climate-Change-Robinson/dp/0521762766/ref=sr_1_30?s=books&ie=UTF8&qid=1288112930&sr=1-30#noop



*The equal per capita option is certainly a live possibility. One of the most attractive versions is called '**Contraction and Convergence'** (C&C), and it rightly receives a lot of attention. As the name suggests, C&C is a model with two parts. The governments of the world begin by reaching agreement on some particular greenhouse-gas target: some global limit to emissions and a date by when this limit must be reached. C&C can then determine how quickly current emissions must contract in order to achieve the target. On the way to the target date, global emissions converge to equal per capita shares. The moral adequacy of this particular proposal depends on how its parts are cashed out. The Global Commons Institute, the largest advocate of C&C, makes a point of emphasizing what we have been calling the sustainability criterion: the greenhouse-gas budget we opt for ought to be tied to our best current scientific thinking, and it ought to be extremely risk-adverse. A large emphasis is not placed on historical responsibility, but certainly C&C requires larger burdens for faster and more substantial reductions on the part of developed countries. It does satisfy at least a large part of the present capacities and entitlements criterion, most obviously because it aims towards equal per capita emissions, but also because it allows for emissions trading. Whatever else it might do, emissions trading tends to narrow the gap between the rich and the poor. Finally, C&C is at least a long way down the road to procedural fairness. Rooted as it is in the notion that everyone has equal access to the atmosphere, there's just no room for either horse trading or bullying. From a moral point of view, C&C has a great deal to recommend it.*

The Ethics of Climate Change - James Garvey
http://www.amazon.co.uk/Ethics-Climate-Change-Right-Warming/dp/0826497373#_

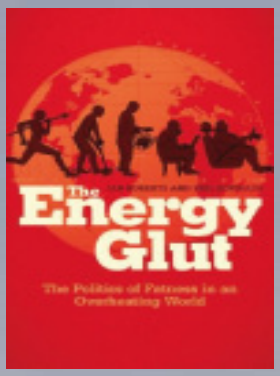

House of Commons
Environmental Audit Committee

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

Fourth Report of Session 2004–05

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

House of Commons Environmental Audit Committee 4th Report
http://www.gci.org.uk/Documents/EAC_G8_.pdf

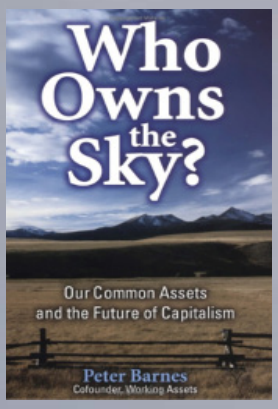


*"A simple and transparent policy framework for reducing greenhouse gas emissions: If such a framework was implemented, then not only would it ensure that atmospheric levels of greenhouse gases were kept to within a safe level, but all of the steps suggested in the earlier chapter of this book would become the easy options, as they would for everyone else around us. The policy is called '**Contraction and Convergence'** and it was devised by the Global Commons Institute. The principle of contraction and convergence has been endorsed by governments, non-governmental organizations, environmentalists, scientists and religious leaden around the world.*

You can get some idea of the range of individuals and organizations that support the principle from the Global Commons Institute website. It reads like an international Who's Who of the great and the good. In fact, according to the UK government, the only group that is not convinced about the merits of the approach is the public."

"The Energy Glut" - Ian Roberts on C&C

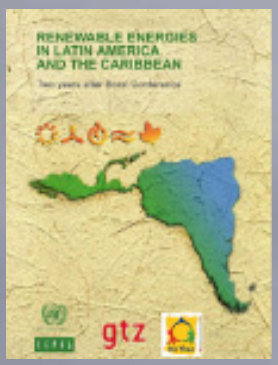
http://www.gci.org.uk/Documents/Energy_Glut_.pdf



*"On the question of global equity, which I have avoided in this book, the reader may want to explore the Web site of the London-based Global Commons Institute. GCI is promoting the concept of '**Contraction and Convergence'** as a way to resolve the dispute between rich and poor countries about how to share the global atmosphere. Under "contract and converge, the per capita emissions of the rich and poor would converge to equality over' say fifty years. During this time, total global emissions would contract. But because poor countries per capita emissions are far below the rich countries' (the average American emits six times as much carbon dioxide as the average Chinese person), the poor countries' emissions would actually rise at first. Though considered a radical idea just a few years ago, contraction and convergence is slowly gaining acceptance."*

"Who Owns the Sky?" - Peter Barnes

http://www.amazon.com/Who-Owns-Sky-Common-Capitalism/dp/1559638559/ref=sr_1_2?ie=UTF8&s=books&qid=1285991295&sr=8-2#reader_1559638559



"Contraction and convergence: - The long-term trend in the climate regime will probably reflect the principle that greenhouse gas emissions should converge to a common per capita level. Achieving this target would involve two steps: (1) an emissions quota is specified in accordance with an agreed level of long-term reductions in greenhouse gases in the atmosphere (contraction); (2) emission quotas are distributed among countries in such a way that per capita emission converge by an agreed date (convergence)."

Renewable energy sources in Latin America and the Caribbean: Coordinated by Manlio F. Coviello - ECLAC

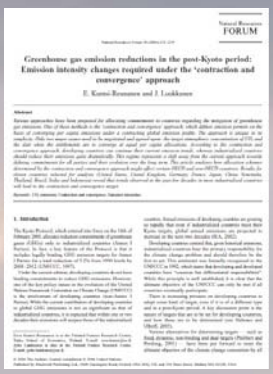
*"Fortunately, the nations of the world have signed the UNFCCC – the United Nations Framework Convention on Climate Change. This commits all nations to work together in solving the global warming problem. However, national governments now need to agree on a new protocol that commits everyone to reducing the total global emissions of greenhouse gases to a safe level. But what would such a new protocol look like? The answer is called '**Contraction and Convergence'.** "C&C" is a framework that forces governments to agree on three vital questions. First, what is a safe concentration of atmospheric greenhouse gases? Is it twice the current concentration? Half the current concentration? The present concentration? Many scientists argue a safe concentration is what it was during the 1960s. The fact is that the Earth system can absorb a certain amount of greenhouse gases without causing harmful change to the climate.*

So once a safe concentration is agreed upon, it is then easy to calculate the total global amount of greenhouse gas that can be emitted each year. The second question C&C forces governments to answer is, 'When will the total global emissions of greenhouse gases be reduced to the amount needed to maintain atmospheric concentrations at the agreed safe level?' In 2050? 2100? Next year? The sooner the better, of course, because the longer we wait the more harm is done to people and nature and the more expensive it becomes to fix the problem. The third important question a C&C framework would force governments to reach agreement on concerns how the permissible annual amount of greenhouse gas emissions will be allocated between nations. The simplest and fairest way is to give every person an equal share. This is called a per capita allocation, and is what C&C calls for. One important feature of C&C is that it treats nations fairly. Under this framework, the emission entitlement of people in a poor country will increase relative to what it is now, while that of people in a wealthy country will decrease. This is fair because historically poor countries have not caused the global warming problem and they need to now quickly develop to eliminate poverty. However, under a new C & C-framed protocol, all countries, including developing countries, will be committed to meeting their specified national greenhouse gas targets by the agreed date.

Once a new protocol is in place based on the C&C framework, national governments can then begin the difficult and complex task of negotiating their way through the various implementation issues - that is, working out how to most efficiently and fairly reduce emissions of greenhouse gases to the agreed safe level. In his report to the UK Treasury, Nicholas Stern, former Chief Economist of the World Bank, argued that international co-operation to solve the global warming problem must cover all aspects of policy to reduce emissions including pricing, technology, the removal of behavioural barriers, as well as action on emissions from land use. C&C does not solve all these problems, but provides a framework for their negotiated solution." Details on the Contraction & Convergence framework can be found at the web site of the Global Commons Institute.

"Winning the Struggle Against Global Warming Report to the Earth Charter" Brendan Mackey and Song Li

http://www.earthcharterinaction.org/content/attachments/10/MackeyLi_ClimateReport2007.pdf

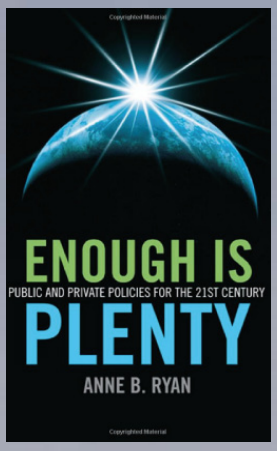


*"Various approaches have been proposed for allocating commitments to countries regarding the mitigation of greenhouse gas emissions. One of these methods is the '**Contraction and Convergence**' approach, which defines emission permits on the basis of converging per capita emissions under a contracting global emission profile. The approach is unique in its simplicity. Only two major issues need to be negotiated and agreed upon: the target atmospheric concentration of CO2 and the date when the entitlements are to converge at equal per capita allocations. According to the contraction and convergence approach, developing countries can continue their current emission trends, whereas industrialized countries should reduce their emissions quite dramatically.*

This regime represents a shift away from the current approach towards defining commitments for all parties and their evolution over the long term. This article analyses how allocation schemes determined by the contraction and convergence approach might affect certain OECD and non-OECD countries. Results for eleven countries selected for analysis (United States, United Kingdom, Germany, France, Japan, China, Venezuela, Thailand, Brazil, India and Indonesia) reveal that trends observed in the past few decades in most industrialized countries will lead to the contraction and convergence target."

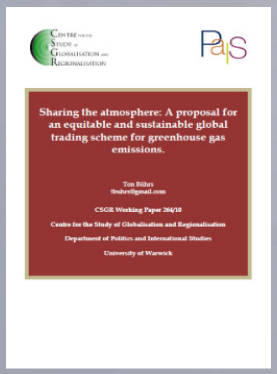
Greenhouse gas emission reductions in the post-Kyoto period: E. Kuntsi-Reunanen and J. Luukkanen

http://www.gci.org.uk/Documents/C&C_NRF.pdf



*"A '**Contraction and Convergence'** framework of global quotas has the potential to contribute highly to global justice. The recent "make poverty history" movement has demonstrated a moral awakening and a will among the affluent to see justice created worldwide. But with this, as with so many other things, individuals cannot create new systems. Global quotas can create new systems and new forms of wealth and ensure that wealth is evenly pre-distributed to all citizens of the globe. The trading of quotas brings money to poor countries as a right, not as aid. By insisting on equity, Convergence addresses the objections of "less developed" economies to paying for the damage caused by the developed affluent communities. Poor and vulnerable countries and communities are most at risk from the climate change that results from global warming, even thought they are least responsible for causing the problem. And those who are already cash-poor have fewer immediate resources for escaping from or coping with the effects of climate change. Trading in quotas is a way to create a rights of greater social justice."*

"Enough Is Plenty - Anne B Ryan
http://www.amazon.com/Enough-Plenty-Private-Policies-Century/dp/184694239X/ref=sr_1_1?s=STORE&ie=UTF8&qid=1285909066&sr=1-1#_

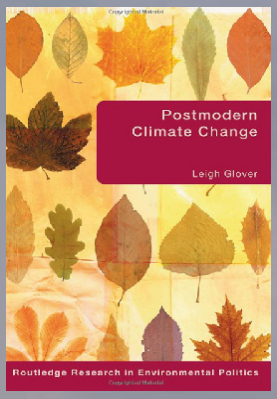


*The '**Contraction and Convergence'** (C&C) approach, which also assigns, in principle, an equal per capita 'right' to GHG emissions to all people, and expects emissions of all countries to converge to that level by a set date, can be seen as an application of the ES approach. (Kuntsi-Reunanen and Luukkanen, 2006; Meyer, 2000; Najam, et al., 2003; Pearce, 2003). Although initially dismissed as idealistic, there are signs that its political acceptability is growing, in part because there seems to be no other way to bring countries like China and India into the fold of a global climate change regime. Many political and business leaders, including the German Chancellor Angela Merkel, have expressed support for the adoption of a global agreement based on the Contraction and Convergence model, recognising that, in global political terms, it is the most realistic basis for forging international consensus on a post-Kyoto climate change agreement (Global Commons Institute, 2008; Spiegel Online International, 2007).*

Sharing the atmosphere - Ton Bührs University of Warwick
http://www2.warwick.ac.uk/fac/soc/csgr/research/workingpapers/2010/26410.pdf

*There are a number of proposals in the market. These include '**Contraction and Convergence'** [see Aubrey Meyer 2000].*

EU Climate Change Policy - Challenge of New Regulatory Initiatives - Marjan Peeters, K. Deketelaere
http://www.amazon.com/Climate-Change-Policy-Initiatives-Environmental/dp/1845426053/ref=sr_1_558?s=books&ie=UTF8&qid=1301904844&sr=1-558#_



*GCI has proposed per capita allocations on what co-founder Meyer has called '**Contraction and Convergence'**. He proposes that all nations should converge on a uniform per capita carbon dioxide emission rate at which atmospheric greenhouse gas concentrations are stabilized, which entails great reductions by citizens of high emissions nations and slight increases by those inhabiting the lowest emissions nations. Per capita levels are pegged at the population levels of a base year, neutralizing any allocations benefits gained by allowing population to rapidly increase.*

Postmodern Climate Change - Leigh Glover
http://www.amazon.com/Postmodern-Routledge-Research-Environmental-Politics/dp/0415357349/ref=sr_1_619?s=books&ie=UTF8&qid=1301907844&sr=1-619#_

"Colin Challen, chair of the All Party Parliamentary Climate Change Group in Britain, in a speech on March 28, 2006, called for the '

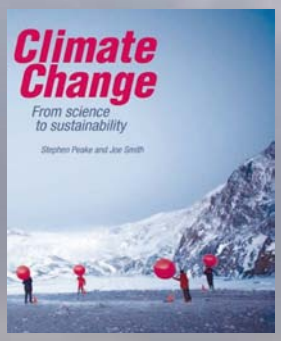
Contraction and Convergence' *plan of the Global Commons Institute based in the UK, (www.gci.org.uk), which calls for globally shared "emission rights" for every man, woman, and child, so that poorer people could sell theirs to the richer thereby converging on equitable reductions of CO2."*

Ethical Markets: Growing the Green Economy - Hazel Henderson

http://www.amazon.com/Ethical-Markets-Growing-Green-Economy/dp/1933392231/ref=sr_1_1?s=books&ie=UTF8&qid=1285911394&sr=1-1#_

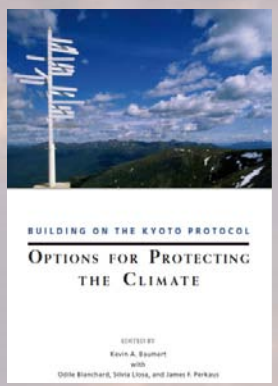
"C&C - Given the obvious shortcomings of an immediate "equal per capita allocation of emission rights that would be compatible with scenarios leading to stabilising GHG concentrations at low levels, their proponents usually see it as a longer-term objective (Meyer, 2000). Allocation for near-term targets would thus be an interpolation between current emission levels and a longer-term equal per capita allocation."

OECD "Beyond Kyoto" Energy Dynamics & Climate Stabilization
http://philibert.cedric.free.fr/Downloads/Beyond%20Kyoto_NS.pdf



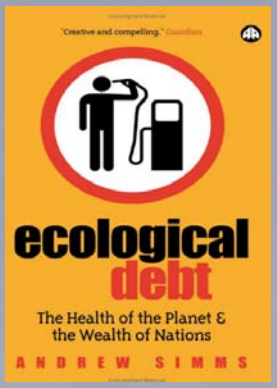
*"One way of ensuring climate equity or justice assumes equal rights to the global commons i.e. the oceans, space and the atmosphere. One influential example of this way of thinking is the '**Contraction and Convergence'** approach where the goal is to see net aggregate emissions decline over time below some maximum threshold level that stabilises greenhouse gas concentrations with per capita emissions of Annex I and Non. Annex I countries arriving at equality. A key assumption is that international climate change agreement should be based on the equitable distribution of rights to emit greenhouse gases. It is interesting to note that the idea did not come from a well-resourced international NGO or one of the international agencies, but was forced on the climate-change negotiations by the determination of a few campaigners like Aubrey Meyer, a former classical musician. With some savings, a suitcase, a laptop computer, some support from friends he toured the climate-change negotiations to press his arguments. He and his colleagues could be seen as the Robin Hoods of climate negotiations from the 1990s onwards."*

From Science to Sustainability - Stephen Peake Jo Smith OUP
http://ukcatalogue.oup.com/product/9780199568321.do#



*'**Contraction and Convergence'** - "This scheme was first introduced by the NGO Global Commons Institute (GCI) in 1990 and has been refined further into what is popularly termed "contraction and convergence." According to GCI, it is not possible to tackle the climate issue without adhering to these two key elements—contraction (environmental integrity) and convergence (equal per capita entitlements) (Meyer 2000).*

Options for Protecting the Climate - Mark Malik Aslam WRI
http://pdf.wri.org/opc_full.pdf



*'**Contraction and Convergence'** [C&C] would reduce the complexity of climate negotiations to two simple variables that would need to be agreed:*

- *the target atmospheric concentration of CO2, and*
- *the date when entitlements converge to being equal per capita.*

*The approach offers the best chance of solving a great, and immensely destructive, international paradox. Interestingly, C&C would also fit the stated position of the otherwise recalcitrant United States. In his statements on climate change, President George W. Bush set out specific criteria for what sort of treaty the US would be willing to sign. They included: a truly global deal including emissions targets for developing countries (or, from another perspective, entitlements) and the need for a science-based approach. '**Contraction and Convergence'**, with its global participation design and formal greenhouse gas concentration target is exactly such an approach."*

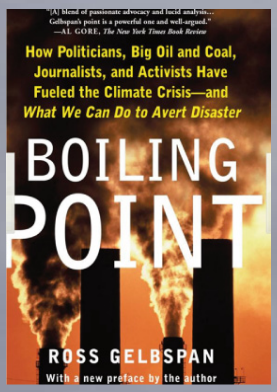
"Ecological Debt" - Andrew Simms on C&C

http://www.amazon.com/Ecological-Debt-Health-Planet-Nations/dp/0745324053/ref=sr_1_1?s=books&ie=UTF8&qid=1285927340&sr=1-1#_

"Perhaps there would be more consideration of economic contraction by high-consuming societies if there were a collective rethinking of our economic mythology, and an effort among economists to propose both a vision and some key steps for making a transition to a smaller economic scale. There might be less fear of talking about contraction and convergence, of GHG emissions and of human enterprise as a whole, if there is a ladder for Humpty Dumpty to climb safely to Earth, where the pursuit of happiness and fulfilment can go forward without jeopardizing the future."

We Need a Ladder - Ed Dreby Quaker Eco-Bulletin

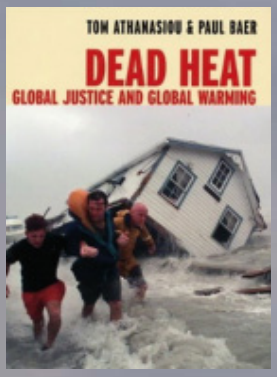
http://www.quakerearthcare.org/Publications/QuakerEcoBulletin/QEBArchive/QEB-PDF/QEB8-4-Ladder.pdf



*"The '**Contraction and Convergence'** [C&C] plan is driven by the major concern that industrial nations, in particular the US, will devise a way of bring down the world's aggregate carbon emissions and, at the same time, either perpetuate or more likely, intensify - the relative poverty of the developing world. In other words the countries of the North will try to achieve climatic stability on the back of the world's poor. The premise is surely justified historically."*

Boiling Point: What We Can Do to Avert Disaster - Ross Gelbspan

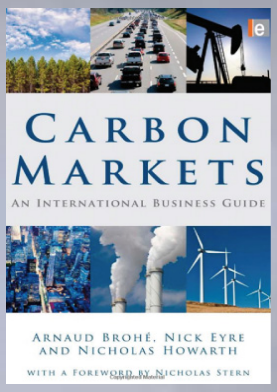
http://www.amazon.com/exec/obidos/ASIN/046502761X/celebritywebsi05/#_



*"The best-known articulation of the idea is '**Contraction and Convergence'** which Aubrey Meyer, director of London's Global Commons Institute, has been tirelessly promoting for many years. The term 'contraction' refers to a reduction of global emissions from today's unsustainable levels to future "safe" levels, while 'convergence' implies that at the same time, developing country emissions allocations would be allowed to increase in the interests of development, while rich-world allocations would drop. The result of these transitions would be a global convergence to equal, and low, per capita allotments. The contraction-and-convergence framework assumes that convergence takes place over some transition period (by, say, 2030) and that allocations are tradable, so that per capita emissions themselves may or may not actually converge."*

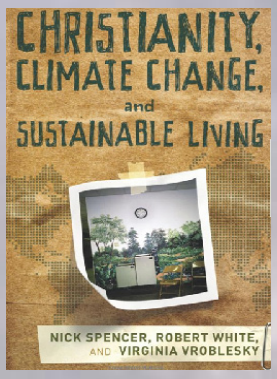
Dead Heat - Tom Athansiou and Paul Baer

http://www.amazon.com/Dead-Heat-Global-Justice-Warming/dp/1583224777/ref=sr_1_4?s=books&ie=UTF8&qid=1285991870&sr=1-4



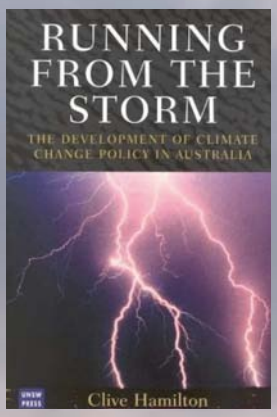
*'**Contraction and Convergence'** (C&C) principles require reductions from rich countries in order to allow developing countries to increase their emissions and economic growth, ending in convergence on a globally similar per capita level of emissions, (Meyer 2000). This alternative approach would represent a major shift from the current Kyoto Protocol approach. Instead of focusing on the question of how to share the emission, reduction burden as in the present Kyoto Protocol, this approach starts from the assumption that the atmosphere is a global common to which all are equally entitled, and focus on sharing the use of the atmosphere (resource sharing). The approach defines emissions rights on the basis of a convergence of per capita emissions under a contracting global emission profile. With this approach all parties would participate immediately after 2012 with per capita emission permits (rights) converging towards equal levels over time. More specifically, over time. All shares converge from actual proportions in emissions to shares based on the distribution of population in the convergence year."*

"Carbon Markets: An International Business Guide"
Arnaud Brohé, Nick Eyre, Nicholas Howarth (Authors)
http://www.amazon.com/Carbon-Markets-International-Business-Environmental/dp/1844077276/ref=pd_bxgy_b_img_a



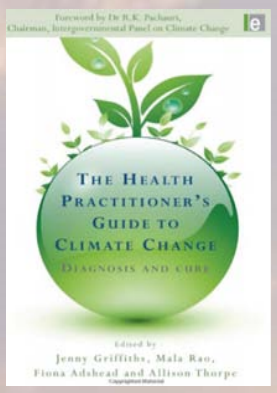
Contraction and Convergence, a model devised by Aubrey Meyer
see figure 7.3

Christianity, Climate Change, and Sustainable Living
Nick Spencer Robert White Virginia Vrodlesky
http://www.amazon.com/Christianity-Climate-Change-Sustainable-Living/dp/1598562290/ref=sr_1_412?s=books&ie=UTF8&qid=1301900885&sr=1-412#reader_1598562290



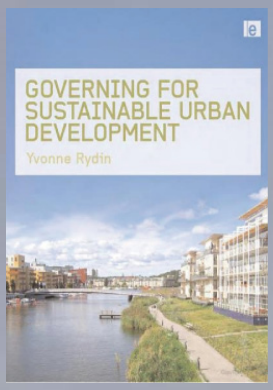
*" . . . . the longer time frame and the more broadly accepted ethical underpinnings of '**Contraction and Convergence'** [C&C] ought to make negotiations less fraught than those leading up to and subsequent to Kyoto. Is contraction and convergence pie in the sky? There is no doubt that it is a radical approach with far-reaching implications for the management of the Earth's common resources. It would redraw the legal and ethical relationships between nations and initiate an era of supranational management of those environmental issues that cross national borders. Difficult, yes; but what is the alternative?"*

Running From The Storm Clive Hamilton, Dir Australia Institute
http://www.amazon.com/Running-Storm-Development-Climate-Australia/dp/0868406120/ref=sr_1_1?ie=UTF8&s=books&qid=1285962644&sr=8-1



*"Preventing runaway climate change is essential for a healthy and sustainable future. However, the economic and social policies that will need to be implemented in order to reduce greenhouse gas emissions will also bring substantial health improvements. Specifically, they could bring important reductions in inequalities in health, heart disease, cancer, obesity, diabetes, road deaths and injuries and urban air pollution. These health benefits arise for three reasons: 1 Because '**Contraction and Convergence'**, which is the fairest, most clearly articulated and most widely supported global framework for reducing greenhouse gas emissions, has justice and equity at its core and injustice and inequality are major determinants of human suffering and sickness (Global Commons Institute, 2008). 2 Because climate change policies will impact in a health-promoting way on two of the most important determinants of health: human nutrition and human movement 3 Because climate change policy has to include population policy and the promotion of family planning has huge potential to improve global health (Cleland et al. 2006)."*

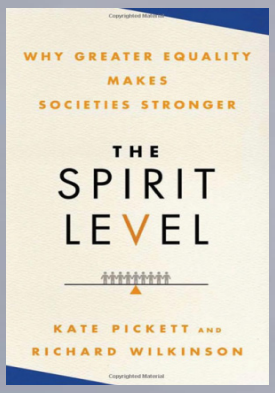
The Health Practitioner's Guide to Climate Change
Jenny Griffiths, Mala Rao, Fiona Adshead, Allison Thorpe
http://www.amazon.com/Health-Practitioners-Guide-Climate-Change/dp/1844077292/ref=sr_1_1?ie=UTF8&s=books&qid=1287949198&sr=8-1#_



*"If a target is set for an acceptable concentration of greenhouse gases in the atmosphere, and an 'emissions budget' set to meet it, it becomes possible to work out for every year from now until the target is met what everybody's logical and equal share is of the atmosphere's ability to soak up our waste emissions. To do this a formula is used so that, in an agreed time-frame, entitlements to emit are pre-distributed in a pattern of international convergence so that, globally, shares become equal per capita. This unavoidable procedure - if chaos is to be avoided - was described and given the term '**Contraction and Convergence'** by the London-based Global Commons Institute. In essence, the world has a carbon cake strictly limited in size. Beyond certain dimensions it becomes rapidly poisonous for everyone, and the only way to begin negotiations on how to cut the cake is to start with the principle that we all have equal access rights. What we do with them is another matter."*

Governing for Sustainable Urban Development - Yvonne Rydin

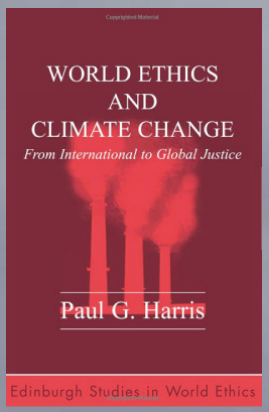
http://www.amazon.com/Governing-Sustainable-Urban-Development-Yvonne/dp/1844078191/ref=sr_1_1?ie=UTF8&s=books&qid=1302789964&sr=8-1



*"Clearly, any system for tackling these problems has to treat rich and poor countries differently. India, producing 1.6 tonnes of carbon per person annually, cannot be treated the same as the USA, producing 24.0 per person. Any regulatory system has to include policies for '**Contraction and Convergence'** or 'cap and share. Both approaches propose a year-on-year contraction in permitted emissions levels, leading to an eventual convergence on equal per capita emissions across the planet."*

Spirit Level: Why Greater Equality Makes Societies Stronger
Kate Pickett and Richard Wilkinson

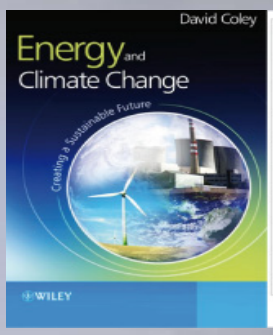
http://www.amazon.com/Spirit-Level-Equality-Societies-Stronger/dp/1608190366/ref=sr_1_fkmr0_1?ie=UTF8&qid=1286136706&sr=1-1-fkmr0#_

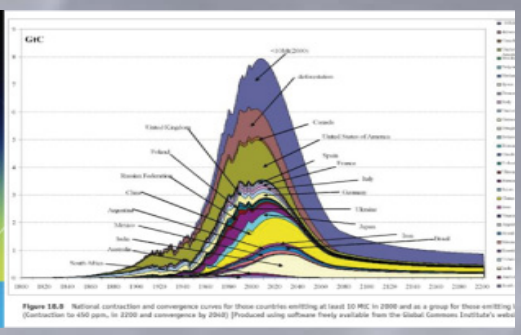


*"One increasingly popular proposal for action on climate change involves '**Contraction and Convergence'** (Meyer 2000) which calls for per-capita emissions of each state to be brought to a level that is equal with other states and that the atmosphere can withstand, in practice meaning that emissions in wealthy countries would come down to a safe level (contraction) and in most developing countries would go up to that level (convergence). The notion of contraction and convergence is essentially based on egalitarianism. . What the cosmopolitan corollary would require is that this policy be implemented not only among states but within them as well. This would mean that while most people in rich countries would lower their greenhouse gas emissions to the globally safe per-capita level most people in poor countries would be allowed to increase their emissions to that level. A difference between this approach and international doctrine is of course that poor people in wealthy states would not bear an unfair burden. Conversely, while most people in poor and developing countries would be allowed to increase their greenhouse gas emissions to the globally safe level, a large minority of people - the affluent - in those same countries would be required to reduce them. The precise amounts set for people would reasonably and fairly depend on their circumstances. Some people are in no position to reduce their emissions, and some emissions over the safe per capita limit might be allowed for certain people if there is no alternative. At the same time, it is reasonable and probably necessary to expect some people to reduce their emissions below the globally safe level. The candidates for this requirement will be those who have polluted far more than they should have done already and who have the means (financial technological and so forth) to reduce their emissions below the globally safe level while still meeting their basic needs."*

World Ethics and Climate Change - Paul G Harris

http://www.amazon.co.uk/World-Ethics-Climate-Change-International/dp/0748639101/ref=sr_1_35?s=books&ie=UTF8&qid=1288153119&sr=1-35#noop





These steps represent Contraction and Convergence (C&C). Although it does have an ethical basis, C&C is essentially a pragmatic approach. Given the need to create a worldwide solution, because of growing emissions from the developing world and the reluctance of the USA to contemplate an approach which is not worldwide, C&C resolves this problem.

Contraction and Convergence
Green Books 2000 Meyer.

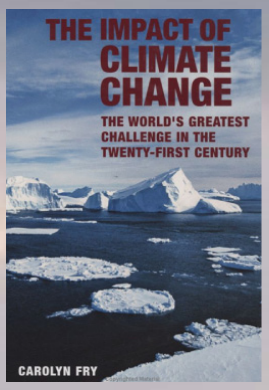
A personal account of the climate negotiations. Energy and Climate Change: Creating a Sustainable Future - David Coley

http://www.amazon.co.uk/gp/reader/0470853123/ref=sib_books_pg?p=S092&keywords=contraction+and+convergence&ie=UTF8&qid=1297972702#reader_0470853123

*"This is a practice that will become more widespread, although whether it will ever achieve the aims of a long-running and laudable campaign by Aubrey Meyer, of the Global Commons Institute, is debatable. His idea is to allow everyone in the world an individual carbon budget. The starting point is that the average American emits 20 tonnes of carbon dioxide each year, the average European 11 tonnes, a Chinese 2.4 tonnes and an Indian just over 1 tonne. Africans produce on average even less. Aubrey's idea is a carbon allocation for the entire world, on the basis of a cut in man-made emissions of 60%. This total is then divided between countries based on the number of citizens that live in it. Over this century each country should reach its allocation. This would allow poor countries to increase their carbon output for the time being as they develop while the already industrialised countries adopt new clean technologies to reduce their carbon footprint. He calls it '**Contraction and Convergence**'. The idea has been widely praised as a possible way forward in inter-national negotiations but so far, for many countries, mostly the profligate emitters, it seems too tall an order."*

GLOBAL WARNING The Last Chance for Change - Paul Brown

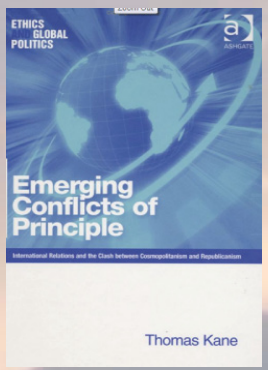
http://www.amazon.co.uk/Global-Warning-Last-Chance-Change/dp/0713682051



*A better fairer method, which has gained wide support among scientists and policy-makers, is one of '**Contraction and Convergence**' developed by the Global Commons Institute.*

The Impact of Climate Change: The World's Greatest Challenge in the Twenty-first Century - Carolyn Fry

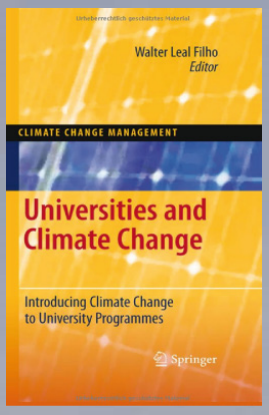
http://www.amazon.co.uk/Impact-Climate-Change-Challenge-Twenty-first/dp/1847731163/ref=sr_1_133?s=books&ie=UTF8&qid=1297984174&sr=1-133#_



*The fact that Developing Nations have endorsed the '**Contraction and Convergence**' [C&C] suggests that it has the potential to overcome the US Senate's stated objection.*

Emerging Conflicts of Principle: International Relations and the Clash Between Cosmopolitanism & Republicanism
Thomas Kane

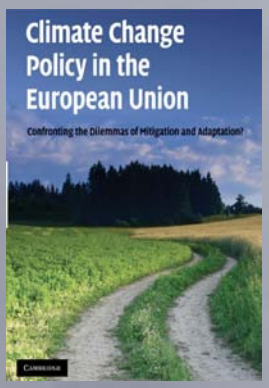
http://www.amazon.co.uk/Emerging-Conflicts-Principle-International-/dp/0754648370/ref=sr_1_114?s=books&ie=UTF8&qid=1298898561&sr=1-114#_



*"Perhaps the most interesting lessons for the authors came from being involved in a very small-scale version of the type of negotiations that are taking place internationally as nations try to agree on global emission reduction targets. Although there were only five organizations involved, the negotiations mirrored the international negotiations in many ways. The participants sought an equitable distribution of the burden of climate change response, while arguing for their own special circumstances and the need for differentiation of targets to take these circumstances into account. It is interesting, though perhaps not surprising, that a '**Contraction and Convergence'** approach emerged as the only equitable way to provide differentiation of targets across the participants. Some authors (e.g. Garnaut 2008; Singer 2006) believe that such an approach is the only way to achieve a successful equitable outcome in international negotiations on climate change response and the ATN experience supports this conclusion. However, the key factor that allowed this approach to succeed in the ATN was the commitment of all parties to the ATN partnership and its spirit of collaboration. A similar spirit is sorely needed in international negotiations on climate change response." '**Contraction and Convergence'** - A Global Solution to a Global Problem*

Universities and Climate Change
Chris Riedy and Jane Daly - Walter Leal Filho

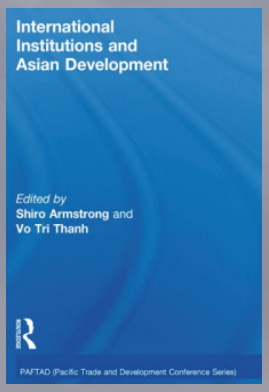
http://www.amazon.co.uk/Universities-Climate-Change-Introducing-University/dp/3642107508/ref=sr_1_10?s=books&ie=UTF8&qid=1288158874&sr=1-10#noop



*"The world is defined by an effective policy commitment to high mitigation through strong policy coordination. In the 'coordinated mitigation world', the international community succeeds in developing a new Kyoto-like regime, negotiated under the UNFCCC entailing greater mitigation action by both the major Industrial Countries as well as Developing Countries. '**Contraction and Convergence'** interacting with markets and technology change succeeds in achieving deep emission cuts."*

Climate Change Policy in the European Union:
Confronting the Dilemmas of Mitigation and Adaptation?

http://www.amazon.co.uk/Climate-Change-Policy-European-Union/dp/0521196124/ref=pd_rhf_p_t_2#_



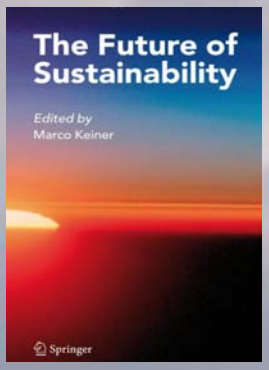
"I recall a conversation with leading environmental officials in China in the early 1990s in which my Chinese interlocutors stated that anthropomorphic global warming was a substantial problem that required a global response. They said then that China would accept control on levels of greenhouse emissions and be ready to join a global 'system for trading emissions rights, as long as the starting point was equal per capita initial rights. This is not an unreasonable position: but it alone would provide no basis for agreement with developed countries. What sort of principle might guide allocation of a global emissions budget across countries? To be widely accepted as being reasonable, the principles will need to be simple. In the end, they will need to give much weight to equal per-capita rights to emissions. They will need to allow long periods for adjustment towards such positions - within the overriding requirement to stay within an environmentally responsible global emissions budget.

*One possible way of bringing together the latter two elements would be the '**Contraction and Convergence'** approach that has been discussed favourably in Germany and India and within which all countries emissions converge on an equal per capita amount at some appropriately defined future time. There will need to be headroom for emissions growth in rapidly growing developing countries within a general principle of equitable sharing of the adjustment burden.*

*The headroom may take the form of challenging emissions intensity targets for example with emissions intensity of output falling at a rate that exceeds half of the GDP growth rate. A limit would need to be placed on the provision of headroom for rapidly growing developing countries. For example, if the '**Contraction and Convergence'** approach were to be accepted as the first organizing idea and an 'emissions intensity alternative' introduced for rapidly growing developing countries, the 'headroom' could be withdrawn at the point where the developing country rising per-capita emissions reach the (rapidly falling) per-capita emissions of standard (that is, moderate emissions developed countries (Europe, Japan, New Zealand). The principles will need to embody developed country commitment to investment in research and development and subsequent diffusion of technologies related to greenhouse gas mitigation to developing countries."*

International Institutions and Economic Development in Asia Thanh Tri Vo Editor

http://www.amazon.co.uk/International-Institutions-Economic-Development-Conference/dp/041549754X/ref=sr_1_19?s=books&ie=UTF8&qid=1297505427&sr=1-19#_



*"Sustainable Development is a commitment to improving people's well being, while recognizing the existence of only one planet. Living within global limits requires from humanity to define these limits in realistic terms and find ways to allocate maximum human demand' in ways acceptable to all nations. '**Contraction and Convergence'** as proposed by Aubrey Meyer from the Global Commons Institute provides such a framework for globally allocating the right to emit carbon in a way that is consistent with the physical constraint, of the biosphere. The approach rests on two transparent principles:*

Contraction: reducing humanity's emissions to a rate that the biosphere can absorb. Convergence: distributing total emissions in a way that is considered fair to all.

The Future of Sustainability- Edited by Marco Keiner

http://www.amazon.co.uk/Future-Sustainability-Marco-Keiner/dp/9048171849/ref=sr_1_19?s=books&ie=UTF8&qid=1296590036&sr=1-19#_

*The '**Contraction and Convergence'** model (C&C), developed by the Global Commons Institute, seeks to reconcile the goals of greenhouse gas stabilisation and international equity. Figure 7.3 illustrates one possible scenario for projected emissions from various regions of the globe were the model to be adopted.*

Environmental Policy - Jane Roberts

http://www.amazon.co.uk/Environmental-Policy-Routledge-Introductions-Environment/dp/041549785X/ref=sr_1_22?s=books&ie=UTF8&qid=1297509863&sr=1-22#_

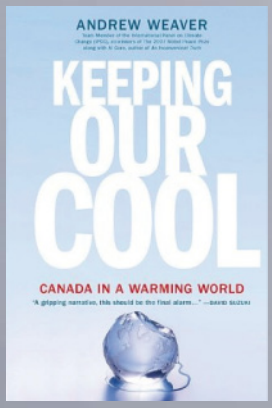
*In 2000 the Royal Commission on Environmental Pollution [RCEP] famously called for a 60 per cent reduction in carbon dioxide emissions by 2050, based on the principle of contraction and convergence". In doing so it paved the way for the 80 per cent target now enshrined in legislation. This illustrates France's bid for cognitive leadership by promoting an argument for policy norms based on fairness. The French approach bears similarities to the '**Contraction and Convergence'** model promoted by Meyer (2000), which views the atmosphere as a global commons and distributes national responsibilities on the basis of international and inter-generational equity. In addition, China and the developing world have a normative preference for the 'contraction and convergence' model. Meyer, A (2000) '**Contraction and Convergence'** - The Global Solution to Climate Change" Green Books*

EU as a Leader in Climate Change Politics R Wurzel, J Connelly

http://www.amazon.co.uk/European-International-Politics-Routledge-Contemporary/dp/B004OBZSYE/ref=sr_1_2?ie=UTF8&qid=1302545450&sr=1-2

*"If the complex process of reducing global carbon emissions is to have a fighting chance of succeeding, then it must start with a broad framework agreement, one that nations both big and small can live with. The most likely candidate is '**Contraction and Convergence'** (C&C) devised by the Global Commons Institute GCI). C&C is a science-based, global policy framework proposed to the UN since 1990 by GCI with the objective of safe and stable greenhouse gas concentrations in the atmosphere and the principles of precaution and equity. The contraction budget for global emissions will be consistent with stabilising atmospheric concentrations of greenhouse gases [GHGs] at a pre-agreed concentration maximum deemed to be safe, following IPCC WG1's carbon cycle modelling. The international sharing of the 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:concentrations agreement."*

The ZEDbook: solutions for a shrinking world
Bill Dunster, Craig Simmons, Bobby Gilbert
http://www.amazon.co.uk/ZEDbook-solutions-shrinking-world/dp/0415391997/ref=sr_1_143?s=books&ie=UTF8&qid=1297985263&sr=1-143#reader_0415391997



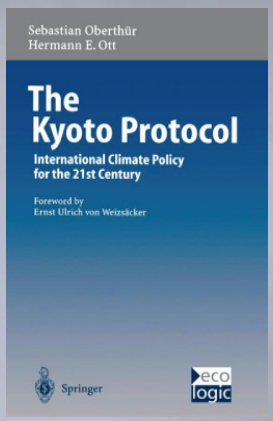
*The fact that everyone has to eventually eliminate their emissions and arrive at carbon neutrality makes it a little easier to construct an international policy framework. Achieving carbon neutrality is a grand challenge, but it's one that we can and must meet. The good news is that an international policy framework already exists. In the early 1990s, Aubrey Meyer, founder of the U.K.-based Global Commons Institute, developed '**Contraction and Convergence'.** The concept is simple and straightforward. First, you determine what level of global warming is tolerable and what is unacceptable. We'll use 2 degrees C as the threshold. Second, you determine the allowable emissions that would keep you within this target. Our analysis suggests 539 billion tonnes of carbon from 2001 onward (484 billion tonnes from 2007 onward). This corresponds to the assumption of a 4.5 degrees C climate sensitivity, the upper bound of the IPCC likely range, meaning that there is less than a 330/0 chance of breaking the 2 degrees C threshold. The final contraction target is carbon neutrality, and we'll assume this occurs in 2100. Now we must allocate the 539 billion tonnes of carbon emissions to individual countries between 2001 and 2100.*

This is the convergence phase. On the convergence date, the principle of global equity is evoked, and every person on Earth is given the right to emit the same amount of carbon. That is, per capita carbon emissions for all countries converge to a common number. We'll use 2075 as the convergence year, although there is no reason why it could not be the same as the contraction year, 2100. Finally, a date has to be chosen beyond which additional credits are not gained for increasing your country's population. That is, increasing your allowable emissions by increasing your country's birth rate is not to be encouraged.

Keeping Our Cool - Andrew Weaver
http://www.amazon.co.uk/Keeping-Our-Cool-Canada-Warming/dp/0670068004/ref=sr_1_1?ie=UTF8&s=books&qid=1298872590&sr=8-1

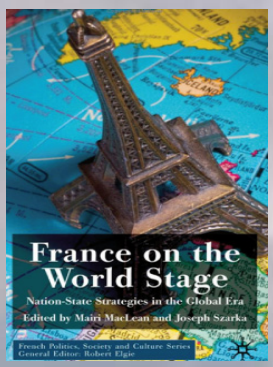
"Contraction & Convergence is the centrepiece of our Climate Justice Project, but it's just a framework, and won't achieve anything unless people know about it and support it. Ultimately, our politicians have to be convinced that Contraction & Convergence is the way forward, and the Climate Justice Project is all about how we achieve this."

The Climate Justice Project
http://www.climatejustice.org.uk/



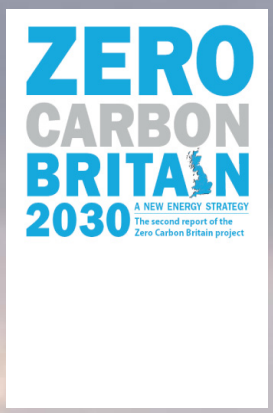
*"One of the possible and likely the most prominent approaches is the process of '**Contraction and Convergence'** towards equal per capita emissions. This is based upon the assumption that the world's population seeks to stabilise CO2 concentrations at 450 ppmv (a level that might prevent dangerous impacts). Annual emissions of about 2 Gt carbon by the end of next century and not more than 600 Gt cumulative carbon emissions in the period from 1990 to 2100 would be the upper limit to the worlds carbon dioxide emissions. Under the convergence approach, equal per capita emissions would guide the allocation procedure over the long-term, i.e. per capita emissions of the various countries would converge to an amount considered to be sustainable. Obviously, this scenario would demand that industrialised countries curtail emissions significantly. Yet imposing this limit would also necessitate caps on developing countries in the near future. Most developing countries perceive equal per capita emissions in the long-term as an acknowledgement of the "equity" concerns of the Convention." "Contraction and Convergence; A Global Solution to a Global Problem", Global Commons Institute*

The Kyoto Protocol - Herman Ott and Sebastian Oberthur
http://www.amazon.co.uk/Kyoto-Protocol-International-Climate-Century/dp/364208575X/ref=sr_1_11?s=books&ie=UTF8&qid=1296834895&sr=1-11#_



*"The French approach bears a similarity to the '**Contraction and Convergence'** promoted by Meyer (2000) which favours a transition of GHG emissions by promoting deep cuts on the part of the industrialised nations. This model views the atmosphere as a 'global commons' and seeks to distribute rights for its use on a per capita basis."*

France on the World Stage: Nation State Strategies in the Global Era Professor Mairi Maclean, Dr Joseph Szarka
http://www.amazon.co.uk/France-World-Stage-Strategies-Politics/dp/0230521266/ref=sr_1_127?s=books&ie=UTF8&qid=1297972064&sr=1-127#_



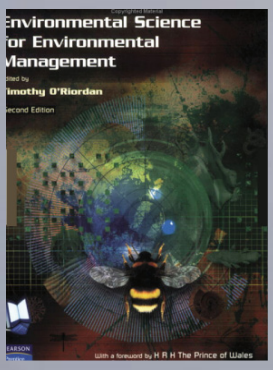
*'**Contraction and Convergence'** (C&C) is one popular and well known policy option which assumes that the only practical and equitable way of allocating carbon is on an equal per capita basis (Meyer, 2004).*

It allows nations to choose their own policy path towards low emissions. This more flexible approach then creates the opportunity for lessons learnt to be adopted elsewhere and for policy efforts to be scaled up or down as appropriate. It would ensure some level of global fairness and could provide Britain the opportunity to take a global lead on local action, international climate aid and technology transfer. Once the carbon budget has been allocated between countries, governments can develop their own national policy framework, or band together with other countries to develop regional carbon cap or tax schemes.

ZERO CARBON BRITAIN 2030 A NEW ENERGY STRATEGY
The second report of the Zero Carbon Britain project
http://www.gci.org.uk/Documents/ZERO_.pdf

Governments obviously have a key role in both causing and aiding solutions to Climate Change. Just as clearly, companies that are particularly damaging must change their ways and help to reduce the threat. However, we cannot rely on these institutions to do this out of goodwill: we must take action ourselves, both by pressurizing governments and companies, and by changing our own lifestyles. In the summer of 2005 a group of between 60 and 80 cyclists rode from London, England, to the site of the G8 summit in Gleneagles, Scotland. Climate change was high on the agenda for the G8 that year and the riders were joining Upsetting the Offset with 1000's of other people in Scotland to lobby, protest and demonstrate. Their concerns were diverse. Some wanted to lobby the leaders of the G8 to take the environment more seriously and adopt contraction and convergence policies to mitigate what they saw as an imminent climate catastrophe.

*Others saw the G8 itself as part of the problem and incapable of offering effective solutions to this or any other problem of late capitalism. As the G8 consists of the leaders of the most polluting, and advanced capitalist, nations, these protestors saw little hope that they would be able to do anything to solve the problems that were a product of the very system they oversaw and which gave them their authority. Instead, they saw a need for a more radical change in which people took direct responsibility for the problems of climate change and sought to create a more egalitarian world in which the rapacious economic growth of the affluent capitalist nations was challenged both through protest and through a strategy of selective disengagement: a process of creating alternative ways of organizing, and developing alternative technologies, in everyday life. See Global Commons Institute (1996) 'Draft Proposals for a Climate Change Protocol based on '**Contraction and Convergence'**: A Contribution to Framework Convention on Climate Change', Ad Hoc Group on the Berlin Mandate, 6th September 1996 AGBM/1.9.96/14, Global Commons Institute (2001) References for '**Contraction and Convergence'**, 11 August, http://www.gci.org.uk/refs/C&CUNEPIIIg.pdf and Meyer, A. (2004) 'Briefing: Contraction and Convergence, Engineering Sustainability', 157(4): 189-92.*



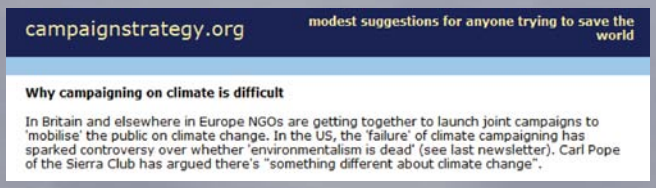
Upsetting the Offset The Political Economy of Carbon Markets
Steffen Böhm & Siddhartha Dabhi

http://www.amazon.com/Upsetting-Offset-Political-Economy-Markets/dp/1906948062/ref=sr_1_1?ie=UTF8&s=books&qid=1302790201&sr=1-1

*'**Contraction and Convergence'**. A single NGO, the Global Commons Institute, has initiated an ingenious approach to COP-4 and beyond."*

Environmental Science for Environmental Management
Tim O'Riordan

http://www.amazon.co.uk/Environmental-Science-Management-Timothy-ORiordan/dp/0582356334/ref=sr_1_39?ie=UTF8&qid=1298885178&sr=8-39#reader_0582356334


campaignstrategy.org
modest suggestions for anyone trying to save the world

Why campaigning on climate is difficult

In Britain and elsewhere in Europe NGOs are getting together to launch joint campaigns to 'mobilise' the public on climate change. In the US, the 'failure' of climate campaigning has sparked controversy over whether 'environmentalism is dead' (see last newsletter). Carl Pope of the Sierra Club has argued there's "something different about climate change".

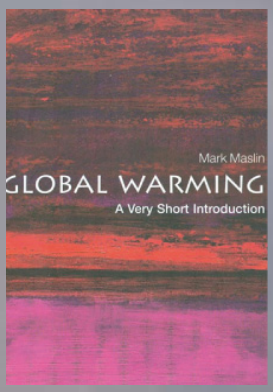
Here are ten factors which have made it hard to campaign effectively 'on climate'.

It's not an exhaustive list.

1. *Scientists defined the issue*
2. *Governments ran off with the issue*
3. *There was no campaign [sequence]: NGOs adopted secondary roles*
4. *The issue had no public*
5. *The media were left to define the issue in visual terms*
6. *Governments soft pedalled on the issue*
7. *Scientists led calls for education of the public*
8. *Many NGOs tried to make the Framework Convention 'work'*
9. *Other NGOs tried to connect it with "bigger issues"*
10. *There is no common proposition*

*Only extraordinary individuals such as Aubrey Meyer, father of **Contraction and Convergence'**, managed to penetrate this remote citadel. NGOs could prioritise it but they were stuck in someone else's game. Alignment to the problem and solution was largely absent and engagement opportunities were almost absent.*

Chris Rose - Campaign Strategy
http://www.campaignstrategy.org/articles/climate_difficulty.html

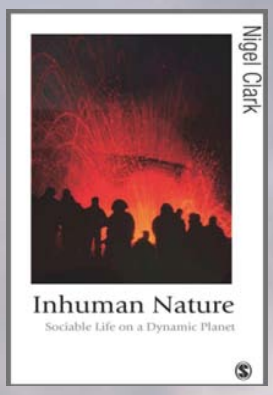


"The principle of Contraction and Convergence should be enshrined in the post 2012 agreement."

Global Warming: A Very Short Introduction
Mark Maslin
http://www.amazon.co.uk/Global-Warming-Short-Introduction-Introductions/dp/0199548242/ref=sr_1_106?s=books&ie=UTF8&qid=1297970889&sr=1-106#_

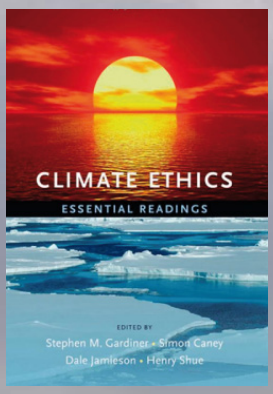
*"One of the most promising ideas in this area is called '**Contraction and Convergence'** in which a 'carbon budget' is set for all nations based on a per capita allocation of allowable emissions. Under this system, nations with more carbon usage (usually the rich ones) would be able to buy credits from the poorer nations which had operated within their 'carbon budget'."*

Modern Life: As Good as It Gets?
Richard Docwra
http://www.amazon.co.uk/Modern-Life-As-Good-Gets/dp/1903998972/ref=sr_1_111?s=books&ie=UTF8&qid=1297971290&sr=1-111#_



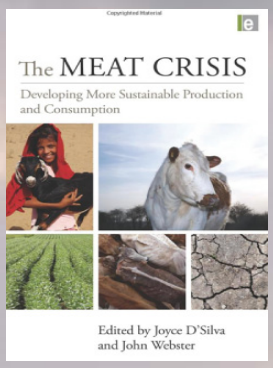
*"Aubrey Meyer's principle of '**Contraction and Convergence'**, while hinging on the absolute equitability of allocating every person on earth the right to the same quantity of carbon emissions, in practice calls for a dramatic reduction in the non-renewable energy use of the most industrialized populations."*

Inhuman Nature
Nigel Clark
http://www.amazon.co.uk/Inhuman-Nature-Representation-Published-association/dp/0761957243/ref=sr_1_2?s=books&ie=UTF8&qid=1296589153&sr=1-2#_



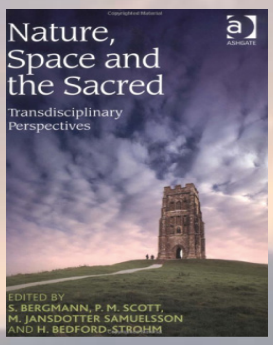
*"Per capita emissions allocated according to '**Contraction and Convergence'** [2030 convergence year] under an emissions pathway designed to stabilize atmospheric GHG concentrations at 450 ppmv CO2 equivalent."*

Climate Ethics
Henry Shue
http://www.amazon.co.uk/Climate-Ethics-Essential-Stephen-Gardiner/dp/0195399617/ref=sr_1_fkmr0_1?ie=UTF8&qid=1297669896&sr=1-1-fkmr0#_



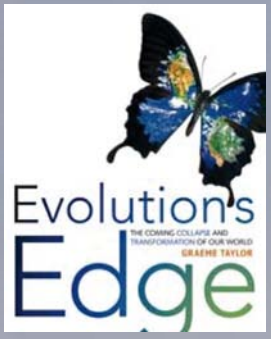
*"The '**Contraction and Convergence'** strategy, phased in over several decades, would therefore be good for the planet, good for enhancing global equity and generally good for population health."*

Meat Crisis
Joyce D'Silva and John Webster
http://www.amazon.co.uk/Meat-Crisis-Developing-Sustainable-Consumption/dp/1844079031/ref=sr_1_fkmr0_1?ie=UTF8&qid=1297673880&sr=1-1-fkmr0



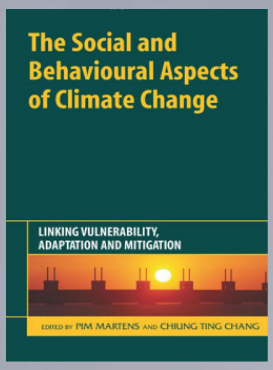
*"Nature, Space and the Sacred known as '**Contraction and Convergence'**first advanced by Aubrey Meyer at the Global Commons Institute."*

Nature, Space and the Sacred
P. M. Scott, M. Jansdotter Samuelsson, H. Bedford-Strohm, S. Bergmann
http://www.amazon.co.uk/Nature-Space-Sacred-P-Scott/dp/0754666867/ref=sr_1_79?s=books&ie=UTF8&qid=1297970242&sr=1-79#_



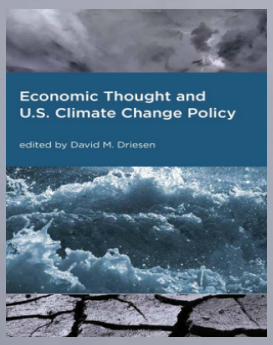
*"With their huge population China now emits more greenhouse gas each year that the United States. This problem can be resolved using a principle called '**Contraction and Convergence**' [C&C]."*

Evolution's Edge: The Coming Collapse & Transformation of Our World Graeme Taylor
http://www.amazon.co.uk/Evolutions-Edge-Coming-Collapse-Transformation/dp/0865716080/ref=sr_1_11?ie=UTF8&qid=1297673685&sr=8-11



*"The EU position resembles the '**Contraction and Convergence**' [C&C] approach, which requires long-term convergence of per capita emissions, while affording countries with per capita emissions below the global average the right to increase further their emissions before reducing them in line with the required global average."*

"The Social and Behavioural Aspects of Climate Change" Pim Martens
http://www.amazon.co.uk/Social-Behavioural-Aspects-Climate-Change/dp/1906093423/ref=sr_1_30?s=books&ie=UTF8&qid=1296836073&sr=1-30#_

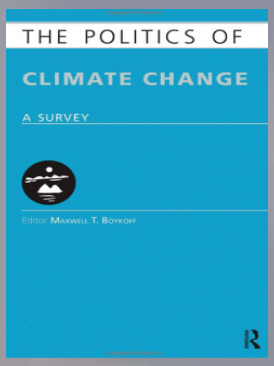


*'**Contraction and Convergence**' The Global Commons Institute has suggested setting a deadline of either 2020 or 2050 for reaching an equal shares allotment. See GCI briefing* www.gci.org.uk*"*

Economic Thought and U.S. Climate Change Policy David M. Driesen
http://www.amazon.co.uk/Economic-Thought-American-Comparative-Environmental/dp/0262042525/ref=sr_1_48?s=books&ie=UTF8&qid=1297965785&sr=1-48#_

*"One widely discussed and advocated framework for tackling climate change which claims a strong foundation in this mythic position of climate change as social justice is that of '**Contraction and Convergence**' (Meyer. 2001). Contraction-and-convergence has been widely endorsed by organizations ranging from the international negotiating bloc of the Africa Group, the Church of England, and from individuals such as Germany's Chancellor, Angela Merkel. The Indian Prime Minister has repeatedly stressed this principle when articulating the negotiating position of his country in international negotiations: 'Long-term convergence of per capita emissions is ... the only equitable basis for a global compact on climate change' (Singh. 2008)."*

The Future of Ethics Stefan Skrimshire
http://www.amazon.co.uk/Future-Ethics-Climate-Apocalyptic-Imagination/dp/1441139583/ref=sr_1_35?s=books&ie=UTF8&qid=1296836887&sr=1-35#reader_1441139583

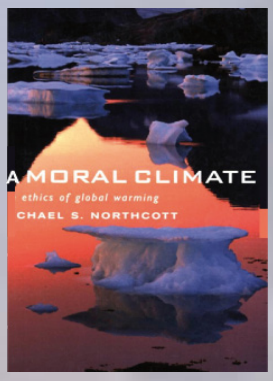


*'**Contraction and Convergence**' is a concept that refers to a long-term strategy for reducing global greenhouse gas (GHG) emissions. This is a process where overall GHG emissions are reduced (contraction) while emissions reductions from the Global South would be less aggressive than those of the Global North through per capita allocation so a, to enable development in the Global South as well as flexibility for a transition from carbon based energy sources to renewable energy sources. This proposal has gained support from a number of policy participants with a particular sensitivity to issues of climate justice and equality. Eventually, all emissions entitlements would converge at an equal per capita emissions level dependent upon particular geography and political economy."*

The Politics of Climate Change Maxwell T. Boykoff (Editor)
http://www.amazon.co.uk/Politics-Climate-Change-Europa/dp/185743496X/ref=sr_1_67?s=books&ie=UTF8&qid=1297967441&sr=1-67#_

*'**Contraction and Convergence'** is the logical conclusion of an equitable approach to resolving climate change."*

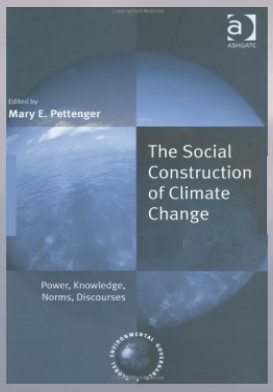
C&C Demonstration in Trafalgar Square London



*"This approach is given the name of '**Contraction and Convergence'** as articulated by Aubrey Meyer of the Global Commons Institute."*

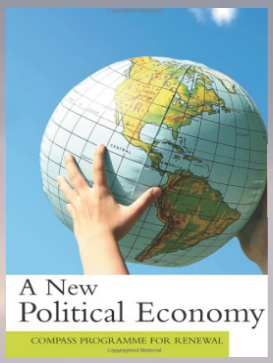
A Moral Climate: The Ethics of Global Warming
Michael S. Northcott

http://www.amazon.com/Moral-Climate-Ethics-Global-Warming/dp/1570757119/ref=sr_1_1?ie=UTF8&qid=1298878763&sr=8-1#_



*"The '**Contraction and Convergence'** framework models how the trajectory of emissions would travel if we were to start from status quo emissions distribution and mover towards per capita equality [convergence] while reducing emissions to an overall level which is a politically set goal to achieve climate stability [contraction]."*

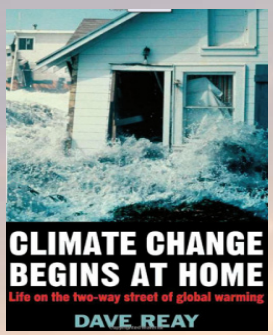
The Social Construction of Climate Change: Power, Knowledge, Norms, Discourses - Mary E. Pettenger
http://www.amazon.co.uk/Social-Construction-Climate-Change-Environmental/dp/0754648028/ref=sr_1_4?s=books&ie=UTF8&qid=1298880200&sr=1-4#_



*'**Contraction and Convergence'** seems a long way off the agenda at present, but such a programme seems the only likely long-term way to secure an acceptable level of emissions at the global level."*

A New Political Economy: Compass Programme for Renewal
Hetan Shah Martin McIvor

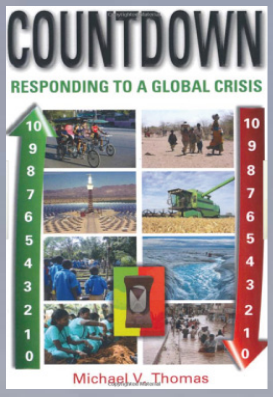
http://www.amazon.co.uk/New-Political-Economy-Compass-Programme/dp/1905007507/ref=sr_1_65?s=books&ie=UTF8&qid=1298889758&sr=1-65#reader_1905007507



*"Then imagine the reactions to the news that instead of no new taxes, everyone will be getting quotas under the ground-breaking '**Contraction and Convergence'** model."*

Climate Change Begins at Home: Life on the Two-Way Street of Global Warming Dave Reay

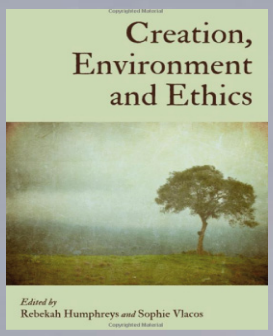
http://www.amazon.co.uk/Climate-Change-Begins-Home-Two-Way/dp/0230007546/ref=sr_1_64?s=books&ie=UTF8&qid=1298888378&sr=1-64#_



*'**Contraction and Convergence'**, the proposal put forward by the Global Commons Institute, may be the only fossil fuel reduction scheme acceptable to the rapidly developing nations of S E Asia."*

Countdown: Responding to a Global Crisis
Michael V. Thomas

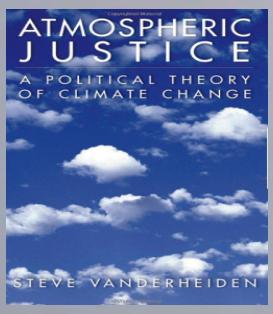
http://www.amazon.co.uk/Countdown-Responding-Michael-V-Thomas/dp/1848762283/ref=sr_1_53?s=books&ie=UTF8&qid=1297966447&sr=1-53#reader_1848762283



*"This is what the White Paper favours a particular interpretation of the principle by Aubrey Meyer, the '**Contraction and Convergence'** account in which there would be contraction of the total emissions and convergence to equal human entitlements."*

Creation, Environment and Ethics
Rebekah Humphreys (Author, Editor), Sophie Vlacos

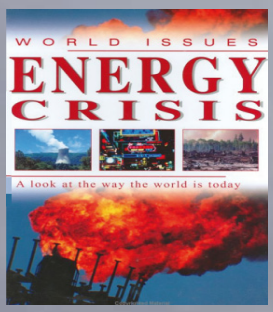
http://www.amazon.co.uk/Creation-Environment-Ethics-Rebekah-Humphreys/dp/1443825085/ref=sr_1_3?ie=UTF8&qid=1298880192&sr=8-3



*"The '**Contraction and Convergence'** scenario offers an alternative normative foundation for the equal shares approach to assigning national emissions caps."*

Atmospheric Justice: A Political Theory of Climate Change
Steve Vanderheiden

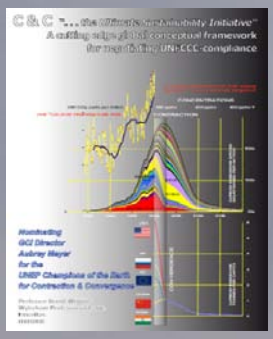
http://www.amazon.co.uk/gp/product/0195334604/ref=s9_simh_gw_p14_d0_i1?pf_rd_m=A3P5ROKL5A1OLE&pf_rd_s=center-2&pf_rd_r=0KDA714QH1N8FN8BFF2H&pf_rd_t=101&pf_rd_p=467128533&pf_rd_i=468294



*"The Kyoto agreement was a start. Now there is a new idea '**Contraction and Convergence'**."*

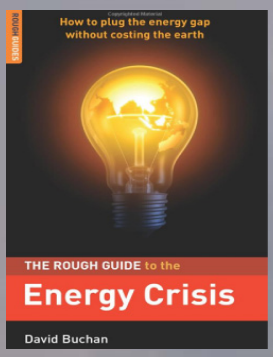
Energy Crisis - Ewan McLeish

http://www.amazon.co.uk/Energy-Crisis-World-Issues-McLeish/dp/0749662654/ref=sr_1_118?s=books&ie=UTF8&qid=1298899611&sr=1-118#_



*'**Contraction and Convergence'** "the Ultimate Sustainability Initiative" A cutting edge global conceptual framework for negotiating UNFCCC-compliance*

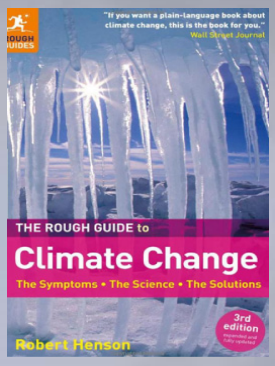
Nominating GCI Director Aubrey Meyer for
UNEP Champions of the Earth for Contraction & Convergence
Prof David Wiggins - Wykeham Prof of Logic, Emeritus OXFORD
http://www.gci.org.uk/Documents/Zayed_Prize_2011_Mayer_Draf_Corrected_Final_Final_David_Wiggins.pdf



*The '**Contraction and Convergence'** proposal. The idea is that overall emissions should contract to a safe level. and that per capita emissions should converge to the same level for all. It can hardly be faulted on moral grounds.*

The Rough Guide to the Energy Crisis
David Buchan

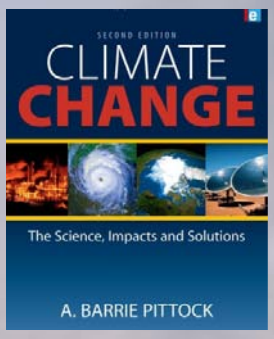
http://www.amazon.co.uk/gp/reader/1848364121/ref=sib_books_pg?p=S07X&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300210303#reader_1848364121



*Aubrey Meyer '**Contraction and Convergence'** [2001]. The full story about one of the leading candidates for a post-Kyoto system of controlling greenhouse emissions. Meyer developed C&C more than a decade ago and makes the case for it with passion and conviction.*

The Rough Guide to Climate Change Third Edition
Robert Henson

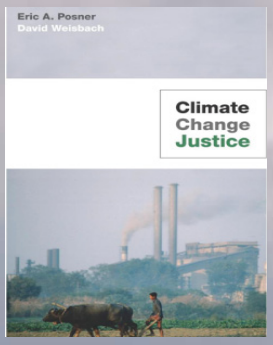
http://www.amazon.com/Rough-Guide-Climate-Change-Reference/dp/1848365799/ref=sr_1_57?s=books&ie=UTF8&qid=1301842569&sr=1-57#_



*'**Contraction and Convergence'**. This proposal originally from the Global Commons Institute in the UK, defines as the goal a target of stabilised greenhouse gas concentration, assesses a global emissions pathway [variation in emissions with time] that would lead to this goal, and allocates emissions pathways to individual countries aimed at converging on the same emissions per capita at some future date such as 2050 or 2100. This would allows some initial increase in emissions per capita, but greater reductions for countries with high emissions per capita.*

Climate Change: The Science, Impacts and Solutions
A. Barrie Pittock

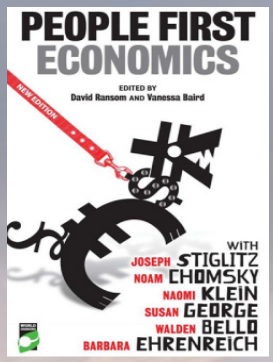
http://www.amazon.com/Climate-Change-Science-Impacts-Solutions/dp/1844077861/ref=sr_1_87?s=books&ie=UTF8&qid=1301845504&sr=1-87#_



*"A number of commentators have supported a slow move towards equal per capita emissions on the theory that a slow transition reduces disruptions, calling this approach '**Contraction and Convergence'**."*

Climate Change Justice - Eric A. Posner David Weisbach

http://www.amazon.co.uk/gp/product/0691137757/ref=s9_simh_gw_p14_d0_i3?pf_rd_m=A3P5ROKL5A1OLE&pf_rd_s=center-2&pf_rd_r=0KDA714QH1N8FN8BFF2H&pf_rd_t=101&pf_rd_p=467128533&pf_rd_i=468294



*A fairer system would be based on per capita emissions such as the '**Contraction and Convergence'** model championed by the Global Commons Institute.*

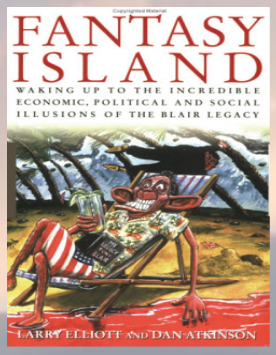
People-First Economics - David Ransom

http://www.amazon.co.uk/gp/reader/1906523835/ref=sib_books_pg?p=S05U&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300210687#reader_1906523835

*Different visions of the energy system and how the low carbon transition is employed.'**Contraction and Convergence'** Global Commons Institute.*

Sustainable Energy (Routledge Explorations in Environmental Economics) Klaus D. John, Dirk Rübbelke

http://www.amazon.co.uk/Sustainable-Routledge-Explorations-Environmental-Economics/dp/041556686X/ref=sr_1_22?s=books&ie=UTF8&qid=1300212978&sr=1-22#_



*"However, policy makers do have an off-the-peg mechanism for tackling global climate change at a global level, known as '**Contraction and Convergence'**"*

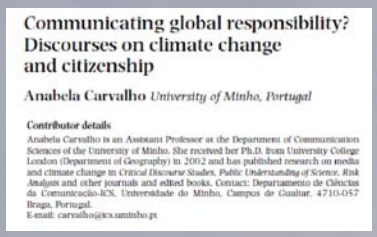
Fantasy Island - Larry Elliott Dan Atkinson

http://www.amazon.co.uk/Fantasy-Island-Larry-Elliott/dp/1845296052/ref=sr_1_18?ie=UTF8&qid=1298884073&sr=8-18#_

*'**Contraction and Convergence'** [C&C] - a system developed by an organisation called the Global Commons Institute that attempts to make the global process of reducing CO2 emissions fair and equitable whether you live in the UK or Uganda. Depending on the level of contraction and the date set for convergence, the C&C system would result in an enormous flow of wealth from high polluters to low polluters, from rich to poor countries, developed to developing nations. The flow would far surpass the amount currently being spent by rich nations on aid. More information on C&C* visit www.cgi.org.uk

Sustrans is the UK's leading sustainable transport charity

http://www.sustrans.org.uk/assets/files/Publications/The_Network_issue_1.pdf



Communicating global responsibility? Discourses on climate change and citizenship

Anabela Carvalho *University of Minho, Portugal*

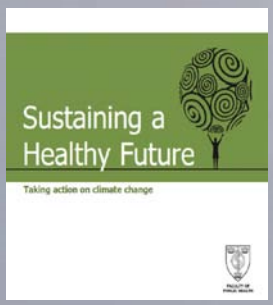
Contributor details

Anabela Carvalho is an Assistant Professor at the Department of Communication Sciences of the University of Minho. She received her Ph.D. from University College London (Department of Geography) in 2002 and has published research on media and climate change in *Critical Discourse Studies*, *Public Understanding of Science*, *Risk Analysis* and other journals and edited books. Contact: Departamento de Ciências da Comunicação-ICS, Universidade do Minho, Campus de Gualtar, 4710-057 Braga, Portugal.
E-mail: carvalho@ics.uminho.pt

Avoiding extreme climate change would require the worldwide adoption of significant behavioural and policy changes towards the reduction of greenhouse gas emissions. The only ethically sustainable solution would involve the progressive equalisation of emission rights for all the inhabitants of the planet. The notion of 'contraction and convergence' advanced by Aubrey Meyer is possibly the best proposal in this respect.

Communicating Global Responsibility? Discourses on climate change & citizenship; Anna Carvalho, Uni. Minho, Portugal

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



*Contraction and convergence is a global framework for tackling climate change through the equitable allocation of carbon rations. The 'contraction' component entails setting global carbon budget, reducing or 'capping' this annually to an agreed level so that the planet's climate once again gains equilibrium. 'Convergence' entails giving an equal entitlement of the capped carbon to each of the four billion or so adult inhabitants of the globe. The disadvantaged – generally low carbon emitters – will have entitlements which would allow for economic and social development or which they could sell to high carbon emitters ie. richer, developed countries. The framework implies both carbon rationing and carbon trading. '**Contraction and Convergence'** is viewed by many as central to discussions on tackling climate change and sustainable development because of its focus on equity www.gci.org.uk*

Sustaining a Healthy Future - Taking Action on Climate Change

http://www.fph.org.uk/uploads/r_sustaining_a_healthy_future.pdf

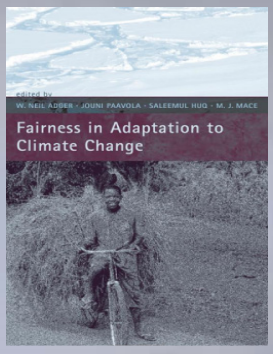
*'**Contraction and Convergence'** - Industrialized and post industrial nations must make substantial reductions in carbon use (contraction). Development for poorer nations will involve increased carbon use. Eventually, carbon use across all nations will converge.*

Well-being in consumer culture and the 'new poor'
Oxfam and UWS 'Whose Economy?' seminar, March 2011
Sandra Carlisle & Phil Hanlon
Centre for Population & Health Sciences University of Glasgow
http://www.oxfamblogs.org/ukpovertypost/wp-content/uploads/2011/04/Sandra-Carlisle.ppt

http://www.gci.org.uk/Documents/Well-being_in_consumer_culture_and_the_new_poor.pdf

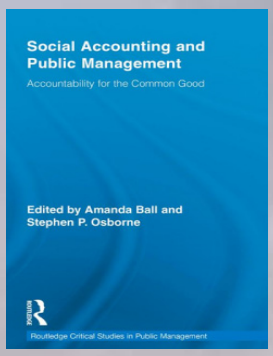
UN Contraction and Convergence *- All nations in the world benefit from healthy eco-systems in other countries but they do little to help pay for their preservation. There is a desperate need to create an effective policy for preserving healthy ecosystems by providing incentives and the resources to do so. The Kyoto protocol and what may follow from it is the first attempt to tackle this for the earth's atmosphere to which no one has been able to claim ownership. The '**Contraction and Convergence'** approach promoted by UN is a well thought through and potentially powerful approach which also addresses fair distribution. The logic of this underpins this paper's model of convergence to living within environmental limits and the wo are mutually supportive. Meyer, BBC* http://news.bbc.co.uk/1/hi/sci/tech/4994296.stm

BRUNEL LECTURE 2008 Peter HEAD OBE FREng FRSA
Entering the Ecological Age: THE ENGINEER'S ROLE
http://www.arup.com/_assets/_download/72B9BD7D-19BB-316E-40000ADE36037C13.pdf



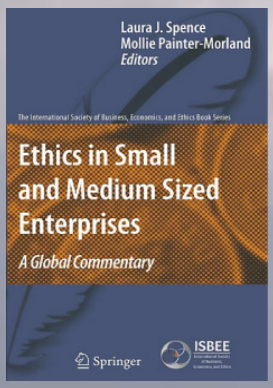
*The history of the climate negotiations shows that such commitments for developing countries, even for the most powerful and resource rich of them, can only be within reach if they are perceived as fair and just. This is a political fact. The concept of '**Contraction and Convergence'** may be very difficult to give concrete shape, but the idea needs to be present in the future structure of an international climate regime. Principles of justice must also be reflected at the national level where they raise difficult problems of equality, with far-reaching political connotations.*

Fairness in Adaptation to Climate Change
W. Neil Adger, Jouni Paavola, Saleemul Huq, M. J. Mace
http://www.amazon.com/Fairness-Adaptation-Climate-Change-Adger/dp/0262511932/ref=sr_1_113?s=books&ie=UTF8&qid=1301846543&sr=1-113#_



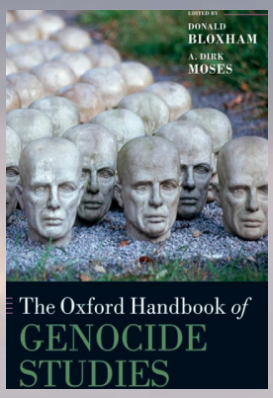
*'**Contraction and Convergence'** - Global Solution to Climate Change. Devon. UK Green Books*

Social Accounting and Public Management (Routledge Critical Studies in Public Management) S P. Osborne, A Ball
http://www.amazon.co.uk/gp/reader/0415806496/ref=sib_books_pg?p=S05D&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300213484#reader_0415806496



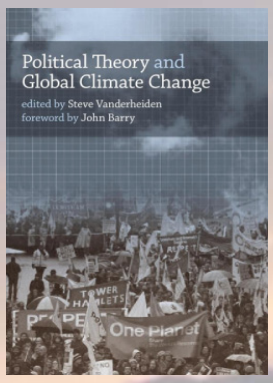
*"South African musician Aubrey Meyer has secured the support of several countries and international agencies for his '**Contraction & Convergence'** strategy to tackle the fundamental causes of global warming."*

Ethics in Small and Medium Sized Enterprizes - Laura J Spence
http://www.amazon.co.uk/Ethics-Small-Medium-Sized-Enterprises/dp/9048193303/ref=sr_1_24?s=books&ie=UTF8&qid=1300211282&sr=1-24



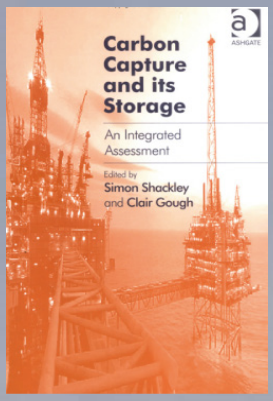
*Significantly this translates exactly into Aubrey Meyer's visionary yet scientific '**Contraction and Convergence'** proposition for how humankind might still tackle climate change. See Meyer 'The Case for Contraction and Convergence' in Cromwell and Levene, 'Surviving Climate Change'.*

The Oxford Handbook of Genocide Studies D Bloxham, A Moses
http://www.amazon.co.uk/Ethics-Small-Medium-Sized-Enterprises/dp/9048193303/ref=sr_1_24?s=books&ie=UTF8&qid=1300211282&sr=1-24



*Relying on past cases of appropriation or allocation of other unclaimed resources from the "global commons" of Antarctica, the oceans and the moon, Raymond finds link precedent for any of the five standard allocation arguments. Instead the recurring Humean claim to exclusive national property rights based in possession (like those implicit in GHG emission rights) is often opposed by "a more radical egalitarian rejection of any exclusive control that does not benefit all citizens of the world." Such a view can be seen, he suggests, in the Common Heritage of Mankind [CHM] principle that has been proposed for the management of the high sea, and that is reflected in the Moon Treaty. This principled resistance to what Raymond terms the 'enclosure' of the global commons contrasts with schemes that assume private-property-right allocation to be a necessary mechanism for avoiding the "tragedy of the commons," of an over-appropriated atmosphere. Despite its explicit rejection in principle of the private allocation of the atmosphere's absorbtive capacity, Raymond identifies several conceptual links between the CHM idea and the '**Contraction and Convergence'**proposal for an equal per capita assignment of national emissions shares, and sees in this ideal the potential to overcome several prominent normative objections to the privatization of the atmosphere.*

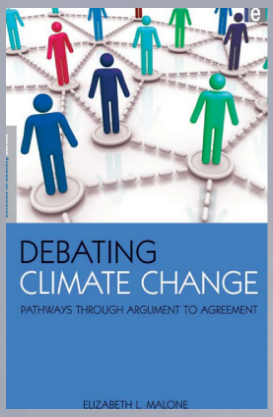
Political Theory & Climate Change - S Vanderheiden, J Barry
http://www.amazon.co.uk/gp/reader/0262220849/ref=sib_books_pg?p=S02C&keywords=contraction+and+convergence&ie=UTF8&qid=1300306928#reader_0262220849



*Setting out to demonstrate International Leadership on action against climate change, the UK set a national target of 60% reduction in CO2 emissions by 2050 in its Energy White Paper [2003]. The 60% was derived through a '**Contraction and Convergence'** approach [Meyer 2000] to meet the 550 ppmv atmospheric CO2 concentration stabilisation target [RCEP 2000].*

Carbon Capture and Its Storage: An Integrated Assessment
Ashgate Studies in Environmental Policy and Practice
Simon Shackley Clair Gough

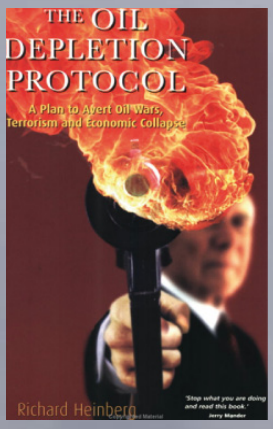
http://www.amazon.co.uk/Carbon-Capture-Its-Storage-Environmental/dp/0754644995/ref=sr_1_189?s=books&ie=UTF8&qid=1300371563&sr=1-189#reader_0754644995



*Aubrey Meyer takes this tack in advocating '**Contraction and Convergence'**. C&C is the idea that each person should get an allowance of greenhouse gas emissions; at first wealthy country citizens would get a larger allowance than citizens of poorer countries but eventually the allowances would converge to one amount, which would contract to the level commensurate with climate stabilization. What Meyer does, in a steady stream of emails and on his web is to point to statements made by others that either explicitly or implicitly refer to this idea. Thus over time he has developed a very long list of people who agree with contraction and convergence.*

Debating Climate Change: Pathways Through Argument to Agreement
Elizabeth L. Malone

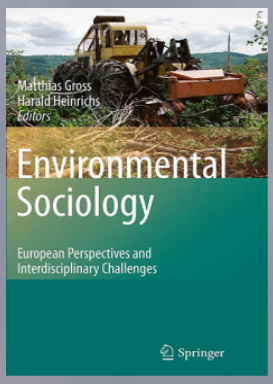
http://www.amazon.com/Debating-Climate-Change-Pathways-Agreement/dp/1844078299/ref=sr_1_137?s=books&ie=UTF8&qid=1301849539&sr=1-137#_



*Some organisations believe that the Kyoto Protocol, while a step in the right direction, could be improved upon. Perhaps the most widely discussed alternative proposal is '**Contraction and Convergence'**.*

The Oil Depletion Protocol:
A Plan to Avert Oil Wars, Terrorism and Economic Collapse
Richard Heinberg

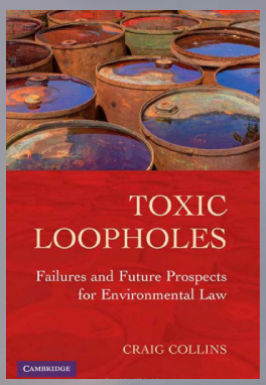
http://www.amazon.co.uk/gp/reader/190557004X/ref=sib_books_pg?p=S02C&keywords=contraction+and+convergence&ie=UTF8&qid=1300379207#reader_190557004X



*The Bush administration lost its credibility to developing countries due to its unwillingness to accept such obligations and start reducing immediately according to a '**Contraction and Convergence'** regime.*

Environmental Sociology:
European Perspectives and Interdisciplinary Challenges
Matthias Gross, Harald Heinrichs

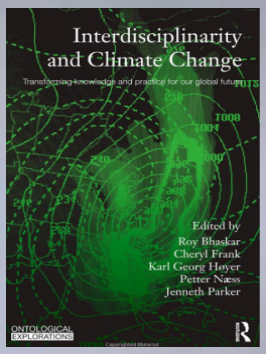
http://www.amazon.co.uk/gp/reader/904818729X/ref=sib_books_pg?p=S01V&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300214435#reader_904818729X



*The basic plan, known as '**Contraction and Convergence'** has important advantages. It takes into account differing circumstances and means of all countries [rich and poor], thereby meeting the developing countries for fairness, at the same time it eventually imposes the same climate-safe GHG limits on everyone.*

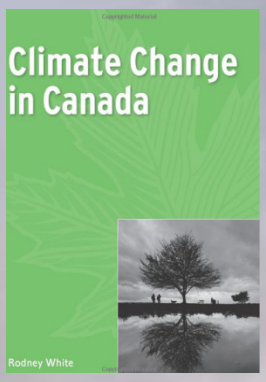
Toxic Loopholes: Failures & Prospects for Environmental Law
Craig Collins

http://www.amazon.co.uk/gp/reader/0521760852/ref=sib_books_pg?p=S066&keywords="contraction+and+convergence"&ie=UTF8&qid=1300216167#reader_0521760852



*Such has been the origin of new concepts like '**Contraction and Convergence'** [Meyer 2000], influential at Kyoto, based on the principle of equal use of atmospheric resources by the world's citizens.*

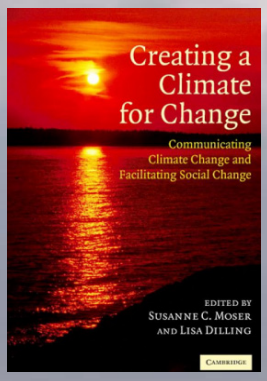
Interdisciplinarity and Climate Change Roy Bhaskar, Cheryl Frank, Karl Georg Høyer, Petter Naess, Jenneth Parker
http://www.amazon.co.uk/gp/reader/0415573882/ref=sib_books_pg?p=S06N&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300216673#reader_0415573882



*'**Contraction and Convergence'** a proposal to reduce GHG emissions in which every country converges on the same per capita allowance of emissions.*

Climate Change in Canada - Rodney Whit
http://www.amazon.co.uk/gp/reader/0195430603/ref=sib_books_pg?p=S02H&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300215444#reader_0195430603

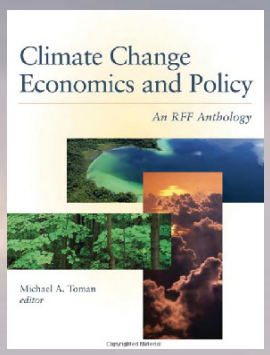
*It is imperative that any climate mitigation regime take into consideration issues of ethics human right and justice. EcoEquity and the Centre for Science and the Environment lay out a vision for fairness that in their words is equal per capita rights to the atmosphere. Internationally this vision is captured in the proposed '**Contraction and Convergence'** approach which reduces emissions from developed high emissions countries and over time comes to a worldwide equal but much reduced per capita standard [Global Commons Institute Meyer 2000]*



Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change Susanne C. Moser, Lisa Dilling

http://www.amazon.com/Creating-Climate-Change-Communicating-Facilitating/dp/0521869234/ref=reader_auth_dp#reader_0521869234

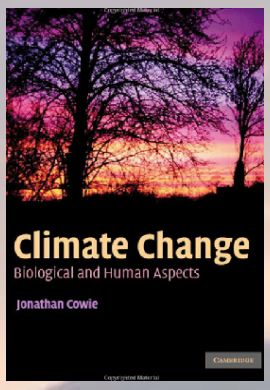
*The idea of making per capita emissions the basis for equitable burden sharing Is a much-discussed option that Is favored by many developing countries. Such formulas are often referred to as convergence measures. A dynamic example of this approach from the Global Commons Institute is '**Contraction and Convergence'** [see suggested reading]. Under this option over time developed countries wound reduce emissions in proportion to their population and developing countries would increase emissions according to their population. Eventually, developed and developing countries would converge to the same per capita emissions ratio. For the environmental goals of the UNFCCC to be met, the ratio and length of expected of time until convergence would have to be calculated to ensure the necessary amount of GHG emissions reductions.*



Climate Change Economics and Policy:
An RFF Anthology - Professor Michael A. Toman

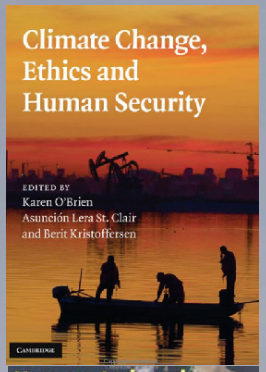
http://www.amazon.com/Climate-Change-Economics-Policy-Anthology/dp/189185304X/ref=sr_1_222?s=books&ie=UTF8&qid=1301856940&sr=1-222#_

*With regard developing and developed nations, carbon emissions and economic growth have been the subject of some discussions about compromise, and indeed it can be found within the Kyoto Protocol. This is the idea of '**Contraction and Convergence'** [C&C] [Meyer 2000] The developed, wealthy nations would switch to a low fossil high energy efficiency economy and so contract their carbon emissions.. Meanwhile, the developing nations would be allowed some leeway and so increase emissions. In this way the developing and the developed nations, on a per capita basis, would see their respective emissions converge.*



Climate Change: Biological and Human Aspects
Jonathan Cowie

http://www.amazon.com/Climate-Change-Biological-Human-Aspects/dp/0521696194/ref=sr_1_303?s=books&ie=UTF8&qid=1301893116&sr=1-303#reader_0521696194



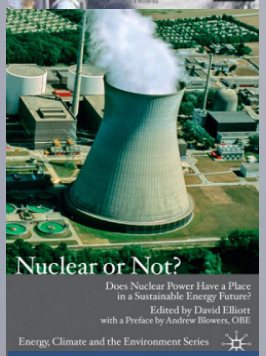
For excellent discussion of the rights of future people see Meyer 2003

Climate Change, Ethics and Human Security [Hardcover]
Karen O'Brien, Asunción Lera St. Clair, Berit Kristoffersen
http://www.amazon.com/Climate-Change-Ethics-Human-Security/dp/052119766X/ref=sr_1_330?s=books&ie=UTF8&qid=1301899503&sr=1-330#reader_052119766X

*Although several burden sharing schemes such as '**Contraction and Convergence'** [C&C] [Meyer 2000] have been proposed, quantitative simulation studies on the subject are scant.*

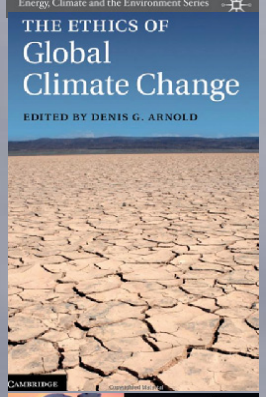
Human-Induced Climate Change: An Interdisciplinary Assessment Michael E. Schlesinger, Haroon S. Kheshgi, Joel Smith, Francisco C. de la Chesnaye, J M. Reilly, T Wilson, C Kolstad

http://www.amazon.com/Human-Induced-Climate-Change-Interdisciplinary-Assessment/dp/0521866030/ref=sr_1_295?s=books&ie=UTF8&qid=1301892477&sr=1-295#reader_0521866030



*Global Commons Institute '**Contraction and Convergence'** model is leading the field [Meyer 2000]. Nuclear Or Not?:* **Does Nuclear Power Have a Place in a Sustainable Energy Future? (Energy, Climate and the Environment) Professor David Elliott**

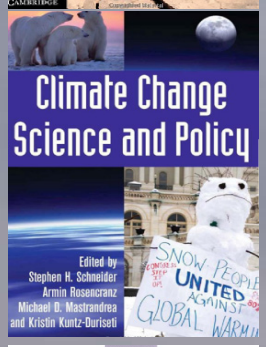
http://www.amazon.co.uk/gp/reader/0230241735/ref=sib_books_pg?p=S02L&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300218436#reader_0230241735



*One suggestion made by a variety of different people is that each person has a right to emit an equal amount of greenhouse gases. This view then takes an egalitarian approach to the distribution of one kind of energy right. This view is remarkably popular. It was for example expressed by Anil Agarwal in their Global Warming in an Unequal World. It also underpins the proposal known as '**Contraction and Convergence'** which has been developed and defended by the Global Commons Institute.*

The Ethics of Global Climate Change - Denis G. Arnold

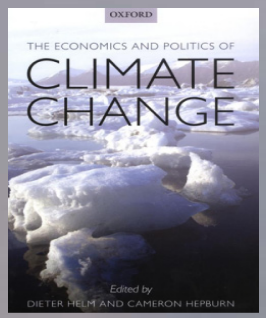
http://www.amazon.com/Ethics-Global-Climate-Change/dp/1107000696/ref=sr_1_143?s=books&ie=UTF8&qid=1301850238&sr=1-143#_



*See A Meyer "Contraction and Convergence the Global Solution to Climate Change" or the web-site of the Global Commons Institute for a discussion of the classic '**Contraction and Convergence'** proposal.*

Climate Change Science and Policy Stephen H. Schneider, Armin Rosencranz, Michael D. Mastrandrea, Kristin Kuntz-Duriseti

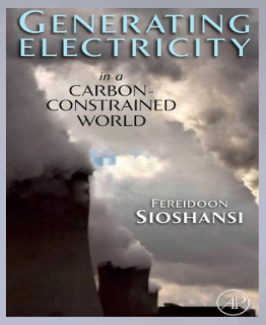
http://www.amazon.com/Climate-Change-Science-Stephen-Schneider/dp/1597265675/ref=sr_1_34?s=books&ie=UTF8&qid=1301831597&sr=1-34#_



*Somewhat more realistically, '**Contraction and Convergence'** scheme proposes national emissions quotas would start from current levels and very slowly converge - over several decades - to being proportional to population.*

The Economics and Politics of Climate Change [Hardcover]
Dieter Helm (Editor), Cameron Hepburn

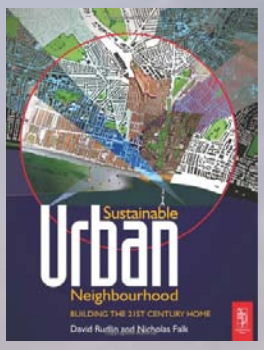
http://www.amazon.co.uk/gp/reader/019957328X/ref=sib_books_pg?p=S04N&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300222571#reader_019957328X



*This definition of equity matches that proposed within the '**Contraction and Convergence'** global approach being championed by German Chancellor Angela Merkel 'Contraction and Convergence' the Global Solution to Climate Change Meyer Green Books 2000.*

Generating Electricity in a Carbon-Constrained World Fereidoon Perry Sioshansi

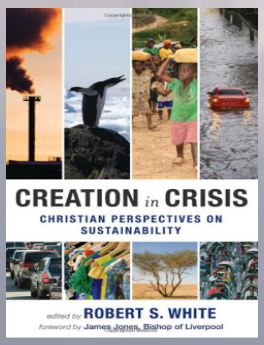
http://www.amazon.co.uk/gp/reader/185617655X/ref=sib_books_pg?p=S03X&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300223018#reader_185617655X



*Mayer Hillman of the Policy Studies Institute working with Aubrey Meyer of GCI has promoted the concept of '**Contraction and Convergence'** global approach being championed by German Chancellor Angela Merkel '**Contraction and Convergence'** the Global Solution to Climate Change Meyer Green Books 2000*

Sustainable Urban Neighbourhood: Building the 21st Century Home David Rudlin BA MTP, Nicholas Falk BA (University College Oxford) MBA (Stanford Graduate School of Business California) PhD in Urban Regeneration (LSE)

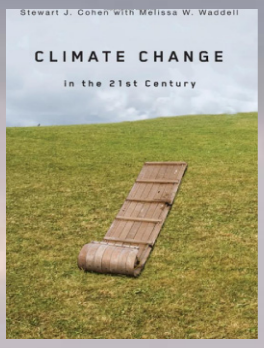
http://www.amazon.co.uk/gp/reader/0750656336/ref=sib_books_pg?p=S032&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300227191#_



*Ways need to be found to achieve reductions that are both realistic and equitable - for instance a mechanism called '**Contraction and Convergence'***

Creation in Crisis Robert White

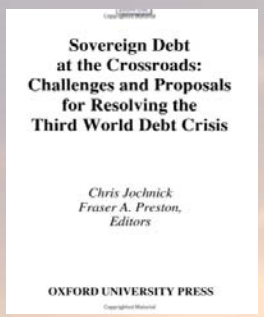
http://www.amazon.co.uk/gp/reader/0281061904/ref=sib_books_pg?p=S018&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300227629#reader_0281061904



*An area of interest in Kyoto related discussion concerning mitigation is the notion of targets for per capita emissions. As of 2007, the Kyoto Protocol has no global targets for per capita emissions; existing targets are just for particular countries, specifically developed countries. There is no policy measure that addresses the atmosphere as a whole, since exiting instruments are all based on only a part of the world's emissions. Outside the Kyoto process, particularly in developing countries, a number of authors have written about the desire to create a more equitable approach for "sharing the atmosphere based on establishing that all countries are entitled to the same per capita consumption of energy and materials and are therefore also entitled to equal per capita GHG emissions rights. This approach is known as '**Contraction and Convergence'**, an idea initiated by the Global Commons Institute during the 1990s.*

Climate Change in the 21st Century
Stewart J. Cohen, Melissa W. Waddell

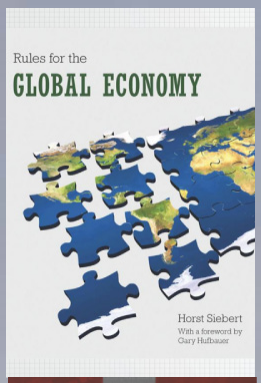
http://www.amazon.com/Climate-Change-Century-Stewart-Cohen/dp/0773533273/ref=sr_1_2?s=books&ie=UTF8&qid=1301827417&sr=1-2#_



*'**Contraction and Convergence'** It is unlikely that everyone in the world will ever use identical amounts of fossil fuels. However, it is highly likely that any deal to manage the global commons of the atmosphere will have to based on this principle. In an agreed time-frame, entitlements to emit are pre-distributed in a pattern of international convergence so that globally they become equal per capita. This procedure is unavoidable if chaos is to be prevented. But it is possible that this framework will succeed without reform of our monetary system.*

Sovereign Debt at the Crossroads: Challenges and Proposals for Resolving the Third World Debt Crisis C Jochnick, F A. Preston

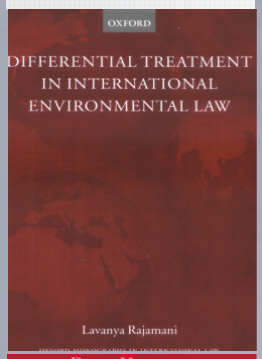
http://www.amazon.co.uk/gp/reader/0195168003/ref=sib_books_pg?p=S038&keywords=contraction+and+convergence&ie=UTF8&qid=1300379750#reader_0195168003



*'**Contraction and Convergence'** proposal of the Global Commons Institute [1996] all countries have to agree a safe level of GHGs for instance no more than 450 ppmv by 2100*

Rules for the Global Economy - Gary Hufbauer

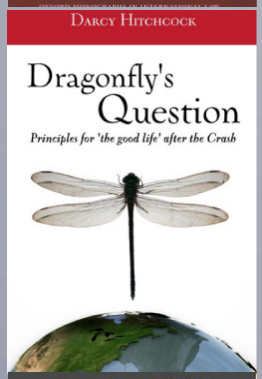
http://www.amazon.co.uk/gp/reader/0691133360/ref=sib_books_pg?p=S07H&keywords=%22contraction+and+convergence%22&ie=UTF8&qid=1300228005#reader_0691133360



*The ultimate objective of the UNFCCC is the stabilization of GHG concentration in the atmosphere. This is a recognition of what has come to be know as the '**Contraction and Convergence'** vision.*

Differential Treatment in International Environmental Law
Lavanya Rajamani

http://www.amazon.co.uk/Differential-Treatment-International-Environmental-Monographs/dp/0199280703/ref=sr_1_1?ie=UTF8&qid=1302595435&sr=1-1



*One proposal called '**Contraction and Convergence'** involves setting a scientifically-based global limit on greenhouse gases and then allocating a share to each person on the planet.*

The Dragonfly's Question
Darcy Hitchcock

http://www.amazon.co.uk/gp/reader/0557054095/ref=sib_books_pg?p=S03L&keywords="contraction+and+convergence"&ie=UTF8&qid=1300228398#reader_0557054095

*A politically challenging issue; the Global Commons Institute has proposed a '**Contraction and Convergence'** strategy It aims to make burden-sharing and emissions levels more equal and equitable.*

The Global Politics of the Environment - Lorraine M. Elliott

http://www.amazon.co.uk/gp/reader/0333948521/ref=sib_books_pg?p=S02K&keywords=contraction+and+convergence&ie=UTF8&qid=1300384147#reader_0333948521

*The '**Contraction and Convergence'** framework is useful for reconciling the divergent interests and views of nations on the basis of their diverse per capita emissions profiles.*

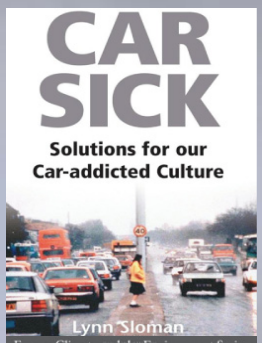
Perspectives on Climate Change: Science, Economics, Politics, Ethics (Advances in the Economics of Environmental Resources)
Walter Sinnott-Armstrong, Richard B. Howarth

http://www.amazon.co.uk/gp/reader/0762312718/ref=sib_books_pg?p=S041&keywords=contraction+and+convergence&ie=UTF8&qid=1300381554#reader_0762312718

*The '**Contraction and Convergence'** concept, among key developing countries and even some developed countries seeking a leadership position on the climate change issue, implies a contraction of emissions from developed countries in order to create ecological space for an increase in emissions in developing countries towards an agreed international benchmark of per capita entitlements.*

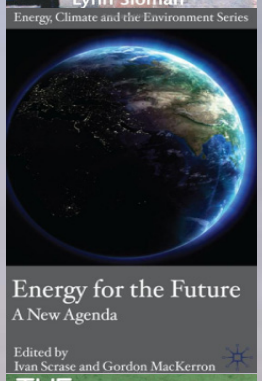
Global Civil Society 2005/6 (Global Civil Society - Year Books)
Helmut K. Anheier, Professor Mary Kaldor, Marlies Glasius

http://www.amazon.co.uk/gp/reader/1412911923/ref=sib_books_pg?p=S03A&keywords=contraction+and+convergence&ie=UTF8&qid=1300383425#reader_1412911923



*The Global Commons Institute has developed the idea of '**Contraction and Convergence'** to allow equal shares per person, set at such a level that we do not exceed safe atmospheric concentrations of CO2.*

Car Sick: Solutions for Our Car-addicted Culture - Lynn Sloman
http://www.amazon.co.uk/Car-Sick-Solutions-Car-addicted-Culture/dp/190399876X/ref=sr_1_1?ie=UTF8&qid=1302595919&sr=1-1

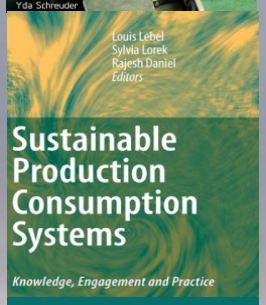


*The Royal Commission on Environmental Pollution [RCEP 2000] started from the proposition that the industrialised world should primarily be responsible for tackling climate change and that the right way forward was '**Contraction and Convergence'** towards equal per capita carbon emissions across the world. Energy for the Future:*
A New Agenda (Energy, Climate and the Environment)
Dr Ivan Scrase, Professor Gordon MacKerron
http://www.amazon.co.uk/Energy-Future-Agenda-Climate-Environment/dp/0230221521/ref=sr_1_1?ie=UTF8&qid=1302596028&sr=1-1

*'**Contraction and Convergence'** is a global framework for reducing GHG emissions to combat climate change. Conceived by the Global Commons Institute in the early 1990s, the 'Contraction and Convergence' strategy consists of reducing overall emissions of greenhouse gases to a safe level while setting per capita emissions equity as the ultimate goal.*

The Corporate Greenhouse : Climate Change Policy in a Globalizing World: Climate Change Policy and Greenhouse Gas Emissions Reductions in a Globalizing World Yda Schreuder

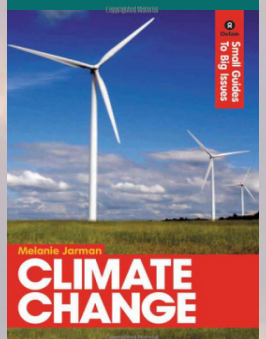
http://www.amazon.co.uk/gp/reader/1842779583/ref=sib_books_pg?p=S00W&keywords=”contraction+and+convergence”&ie=UTF8&qid=1300258178#reader_1842779583



*This is '**Contraction and Convergence'** on a grand scale. Contraction of the consumption by the rich as the foundation for the convergence of consumption levels by all at some sustainable level. At first blush, any talk of contraction and convergence seems hopelessly naive. You'll never get the rich to cut back is one reflexive response. The poor will never show restraint is another.*

Sustainable Production Consumption Systems: Knowledge, Engagement and Practice
Louis Lebel, Sylvia Lorek, Rajesh Daniel

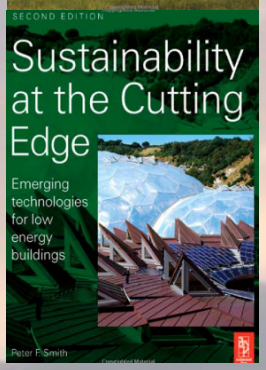
http://www.amazon.co.uk/gp/reader/9048130891/ref=sib_books_pg?p=S00N&keywords=contraction+and+convergence&ie=UTF8&qid=1300305844#reader_9048130891



*The most high-profile possible frameworks for emissions cuts and climate change is '**Contraction and Convergence'**. Under this proposal each country would be allocated its share of the overall emissions budget fulfilling the US requirement that developing countries are given emissions targets.*

Climate Change: Small Guides to Big Issues
Melanie Jarman

http://www.amazon.co.uk/gp/reader/0745325807/ref=sib_books_pg?p=S02P&keywords=contraction+and+convergence&ie=UTF8&qid=1300268746#reader_0745325807



*Ways need to be found to achieve the reductions that are realistic and equitable, for instance following a suggestion of the Global Commons Institute called '**Contraction and Convergence'**.*

Sustainability at the Cutting Edge:
Emerging Technologies for low energy buildings - Peter Smith

http://www.amazon.co.uk/gp/reader/0750683007/ref=sib_books_pg?p=S00N&keywords=contraction+and+convergence&ie=UTF8&qid=1300270215#reader_0750683007

*His answer was the brainchild, the doctrine of '**Contraction and Convergence'** which envisages a global limit on the production of greenhouse gases at a level tolerable to the planet.*

Under the Weather: Us and the Elements - Tom Fort
http://www.amazon.co.uk/gp/reader/0099461242/ref=sib_books_pg?p=S08H&keywords=contraction+and+convergence&ie=UTF8&qid=1300270755#reader_0099461242

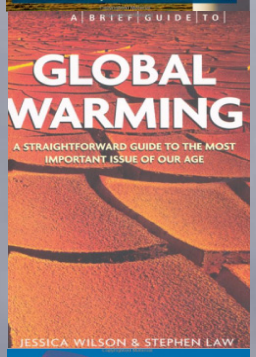
*To achieve a '**Contraction and Convergence'** towards equal per capita emissions equity in the long run. [Meyer].*

Design of Climate Policy (CESifo Seminar Series)
Roger Guesnerie, Henry Tulkens
http://www.amazon.co.uk/Design-Climate-Policy-CESifo-Seminar/dp/0262073021/ref=sr_1_1?ie=UTF8&s=books&qid=1300266352&sr=8-1#_

*'**Contraction and Convergence'** is one such proposal developed by a small London-based NGO called the Global Commons Institute and its charismatic head, the musician Aubrey Meyer. The basic idea which underpins the proposal is that developed countries have to contract their emissions down to an agreed level which would address the UNFCCC's aim of avoiding dangerous interference in the climate system.*

Governing Climate Change - Harriet Bulkeley, Peter Newell

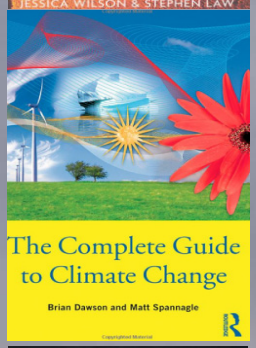
http://www.amazon.co.uk/gp/reader/0415467691/ref=sib_books_pg?p=S01M&keywords=contraction+and+convergence&ie=UTF8&qid=1300264931#reader_0415467691



*'**Contraction and Convergence' -** Aubrey Meyer, an English concert viola player among other things, has proposed the concept of Contraction and Convergence [C&C] as a reasonably fair way to allocate and cut carbon dioxide emissions.*

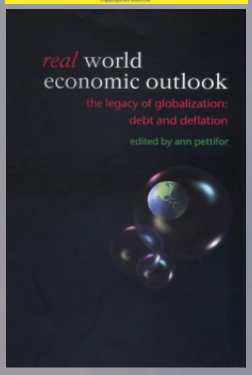
A Brief Guide - Global Warming - Heavyweight Issues, Lightweight Read - Jessica Wilson Stephen Law

http://www.amazon.co.uk/gp/reader/1845296605/ref=sib_books_pg?p=S02Z&keywords=contraction+and+convergence&ie=UTF8&qid=1300268167#reader_1845296605



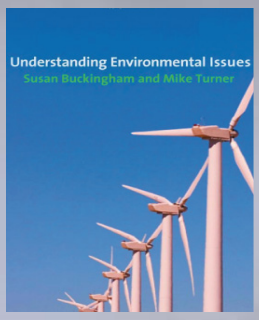
*Equal per capita emissions allocations underlie the '**Contraction and Convergence'** framework put forward by the Global Commons Institute. Under this approach, annual emissions per capita emissions in different countries converge towards similar levels over time and possibly roughly equate to the rate at which the natural systems can absorb the excess greenhouse gases in the atmosphere, thus stabilising concentrations.*

The Complete Guide to Climate Change
Brian Dawson Matt Spannagle
http://www.amazon.co.uk/gp/reader/0415477891/ref=sib_books_pg?p=S043&keywords=contraction+and+convergence&ie=UTF8&qid=1300265764#reader_0415477891



*"We need a system of '**Contraction and Convergence'** as promoted by the London-based GCI."*
The Real World Economic Outlook New Economic Foundation

http://www.amazon.co.uk/Real-World-Economic-Outlook-Globalization/dp/1403917949/ref=sr_1_108?s=books&ie=UTF8&qid=1298892406&sr=1-108#reader_1403917949



"Aubrey Meyer has called for a Contraction and Convergence model for capping global emissions which places an emphasis on distributional equity of emissions over time."

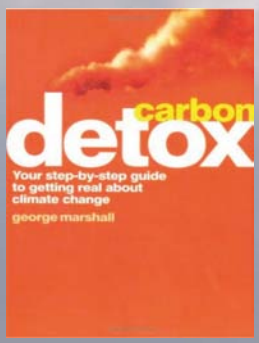
Understanding Environmental Issues S Buckingham M Turner

http://www.amazon.co.uk/Understanding-Environmental-Issues-Susan-Buckingham/dp/076194236X/ref=sr_1_42?ie=UTF8&qid=1298884746&sr=8-42#_

*The UK's target of a 60% reduction by 2050 was originally suggested by the Royal Commission on Environmental Pollution (RCEP) as a means to limit the rise in atmospheric concentrations of carbon dioxide to 550 parts per million (ppm) (RCEP 2000) and was adopted by the Government in the 2003 Energy White Paper (DTI 2003c). The RCEP target was based on the assumption that all nations would be contributing to a global reduction in carbon emissions via a framework called '**Contraction and Convergence'**. This ensures that over time, firstly global carbon emissions would contract and secondly, there would be global convergence to equal per capita shares of this contraction (GCI 2001). The UK Government has not yet adopted C&C as its international negotiating position for the period after the Kyoto agreement, despite RCEP's advice. Setting a national target is only part of what is needed to stabilise global atmospheric concentrations of carbon dioxide and other greenhouse gases – it has little value unless it eventually forms part of a strong global agreement, which the UK must work towards achieving.*

40% House Brenda Boardman, Sarah Darby, Gavin Killip, Mark Hinnells, Christian N. Jardine, Jane Palmer and Graham Sinden

http://www.eci.ox.ac.uk/research/energy/downloads/40house/40house.pdf



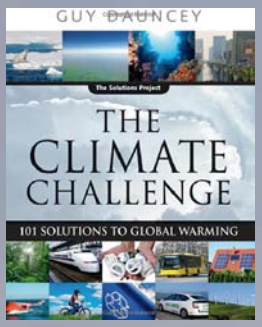
*"The only other option requires us to make deeper cuts in our emissions in order to allow developing countries some room to expand theirs. This proposal - '**Contraction and Convergence'** - has many powerful supporters. Like them I believe it is the only just and politically feasible option."*

Carbon Detox - George Marshall

http://www.amazon.com/Carbon-Detox-Improve-Lifestyle-Thinking/dp/1856752887/ref=sr_1_fkmr2_1?ie=UTF8&qid=1286805452&sr=8-1-fkmr2

In the absence of systemic change, there certainly are things that have been done and more can be done in the future to lessen capitalism's negative effects on the environment and people. There is no particular reason why the United States can't have a better social welfare system, including universal health care, as is the case in many other advanced capitalist countries. Governments can pass laws and implement regulations to curb the worst environmental problems. The same goes for the environment or for building affordable houses.
*A carbon tax of the kind proposed by James Hansen, in which 100 percent of the dividends go back to the public, thereby encouraging conservation while placing the burden on those with the largest carbon footprints and the most wealth, could be instituted. New coal-fired plants (without sequestration) could be blocked and existing ones closed down. At the world level, '**Contraction and Convergence'** in carbon emissions could be promoted, moving to uniform world per capita emissions, with cutbacks far deeper in the rich countries with large per capita carbon footprints. The problem is that very powerful forces are strongly opposed to these measures. So such reforms remain at best limited, allowed a marginal existence only insofar as they do not interfere with the basic accumulation drive of the system.*

What Every Environmentalist Needs to Know About Capitalism Fred Magdoff and John Bellamy Foster
http://monthlyreview.org/2010/03/01/what-every-environmentalist-needs-to-know-about-capitalism

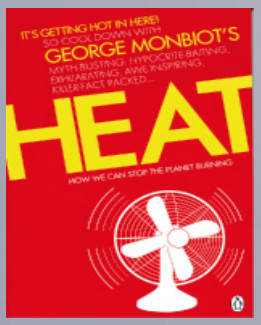


Contraction and Convergence

*Aubrey Meyer, a former viola player and composer, has been promoting '**Contraction and Convergence'** (C&C) since 1991, soon after he became aware of the dangers that climate change presented, and how little Kyoto would do to solve the problem. C&C would establish an annual global cap on emissions based on the best science; create an entitlement to the emissions that would be shared by all humans, reflecting the principles of justice and equity; allocate each country a share of the emissions based on population; trade the allowable emlssions internationally, creating a considerable flow of money from the richer to the poorer nations; and shrink the availabllity of emissions certifica tes as the annual allowable emissions level was lowered. C&C has won considerable support, Including from some national leaders and many climate leaders. The consensus among its supporters is that C&C should provide the foundation for a future global treaty.*

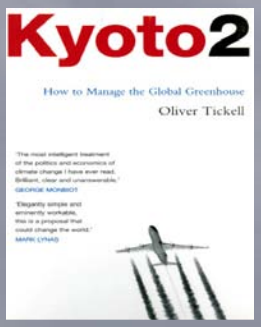
The Climate Challenge: 101 Solutions to Global Warming
Guy Dauncey

http://www.amazon.com/Climate-Challenge-Solutions-Global-Warming/dp/0865715890/ref=sr_1_1?ie=UTF8&s=books&qid=1303282299&sr=8-1#_



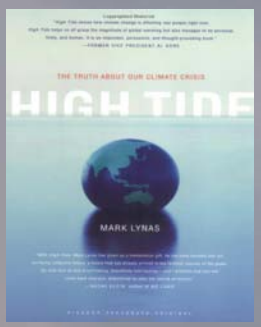
*"The overall effect would be an annual contraction of global carbon emissions, as the different countries converged towards the same amount per person. Unsurprisingly, this approach is known as '**Contraction and Convergence'**. It was devised by a man called Aubrey Meyer. He is one of those extraordinary people whose lack of relevant qualifications appears to work in his favour: he's a concert viola player. Meyer was able to leap over the more constrained proposals of the professionals and produce an idea that was simple, based on science and fair. But while adopting the principle of contraction and convergence would not mean an end to the political arguments, they would no longer take place in a moral and intellectual vacuum. The negotiators would have a target - an equal division of the planet's capacity to absorb pollution - which is both factual and fair. The best estimate of the planet's total carbon sink in 2030 will change as the science improves, but the target can change with it. With an equal global carbon allocation, countries will no longer be able to claim that they can't act because others are not obliged to join in. They might not like this proposal, but they cannot deny that it is even-handed."*

Heat George Monbiot
http://www.amazon.com/Heat-George-Monbiot/dp/0141026626/ref=sr_1_3?ie=UTF8&s=books&qid=1287227124&sr=8-3



*Several proposals have been made for tackling the problems of global heating which recognize the atmosphere as a global commons. The best know of these is know as '**Contraction and Convergence'** [C&C].*

Kyoto2: How to Manage the Global Greenhouse
Oliver Tickell
http://www.amazon.co.uk/gp/reader/1848130252/ref=sib_books_pg?p=S028&keywords=contraction+and+convergence&ie=UTF8&qid=1300266731#reader_1848130252



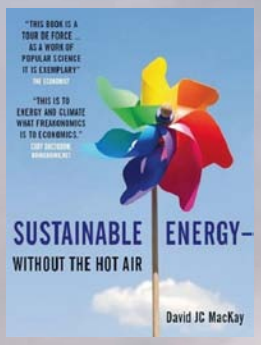
*"Luckily, a workable solution is currently on the table, one which recognises that equal rights to the atmosphere are integral to efforts to protect the climate from major destabilisation. First developed by Aubrey Meyer of GCI, it has begun to receive tacit support from within the British government, adding to support from the European Parliament. The Africa Group of Nations and the governments of India and China. This solution has an elegant logic which cuts right through all the UN jargon and complexity which has blighted international climate policy so far. It's called '**Contraction and Convergence'**"*

High Tide: The Truth About Our Climate Crisis
Mark Lynas
http://www.amazon.com/High-Tide-Truth-Climate-Crisis/dp/0312303653/ref=sr_1_1?ie=UTF8&s=books&qid=1286132743&sr=8-1#_

*There are many ways of looking at our ecological or carbon footprint. If you are looking at carbon footprints you could start by thinking about C02 '**Contraction and Convergence'**– C&C calculates that given we have a global population of seven billion. If you divide that up each person can emit up to two tonnes of CO2 a year. At that rate our planet could sustain it. But the problem is that our population is rising and so then that fi gure would have to be reduced still further. Right now the average person in the UK is responsible for 12 tonnes. They have less than 1% of the world's population but produce 2.3% of the world's carbon emissions. In order to try and reduce these numbers, we need to think about how much CO2 our activities produce. We can do that by changing the amount of energy we waste on a daily basis through the energy we consume in our homes, transportation, leisure, overconsumption and waste. All of these make up our ecological footprints and their impact on the world.*

Peace Child International

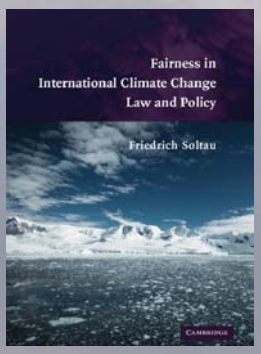
http://www.gci.org.uk/Documents/Road-to-Rio-20_.pdf



*These possibly-safe trajectories require global emissions to fall by 70% or 85% by 2050. What would this mean for a country like Britain? If we subscribe to the idea of '**Contraction and Convergence'** which means that all countries aim eventually to have equal per-capita emissions, then Britain needs to aim for cuts greater than 85%: it should get down from its current 11 tons of CO2e per year per person to roughly 1 ton per year per person by 2050. This is such a deep cut, I suggest the best way to think about it is no more fossil fuels.*

Sustainable Energy - David Mackay

http://www.withouthotair.com/download.html

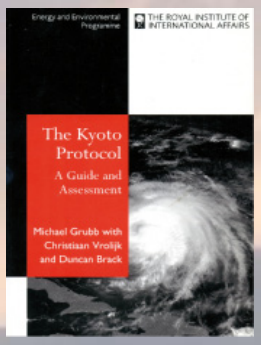


*Equity and fairness concerns are reflected in the Framework Convention itself. Equity is considered explicitly in many of the proposals for a post-Kyoto climate agreement, perhaps most prominently the '**Contraction and Convergence'** proposal, put forward by the Global Commons Institute, see: -* http://www.gci.org.uk/contconv/cc.html

Fairness in International Climate Change Law & Policy - Soltau
http://www.gci.org.uk/Documents/Energy-Game[1].pdf

*Naturally, an agreement will have to be found on the issue of reparations for these cuts. '**Contraction and Convergence'** represents one proposed plan that shows an equal level of emissions per capita for all by the end of the century. The attainment of this objective (relaunched recently by German Chancellor Merkel with the idea of 2 tons annually per inhabitant) involves an expressed decrease of emissions by industrialized countries and smaller amounts by those developing nations reaching a peak by 2025-2030, in order to diminish these emissions.*

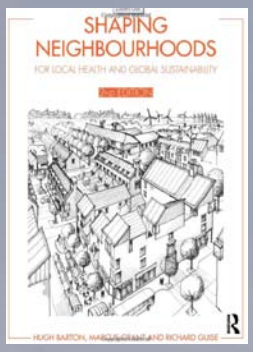
The ENERGY GAME
http://www.gci.org.uk/Documents/Energy-Game[1].pdf



*"The Global Commons Institute [GCI] coined the term and have campaigned to promote the '**Contraction and Convergence'** approach, backed with detailed and graphic numerical studies of what it might mean. Details may be found on the GGI web site, http://www.gci.org.uk, which includes access to a numerical model. The international parliamentarians group, Global Legislators for a Balanced Environment, has backed this approach; and see Aubrey Meyer, 'Global Equity and Climate Change: A History of the UNFCCC Negotiations for a Global Solution', GLOBE International, Brussels, 1998; or Aubrey Meyer, 'Contraction and Convergence: A Global Solution to a Global Problem', in Man Made Climate Change - Economic Aspects and Policy Options, Proceedings of ZEW conference, Mannheim, Germany, March 1997."*

The Kyoto Protocol A Guide and an Assessment review
Michael Grubb, Christiaan Vrolijk and Duncan Brack

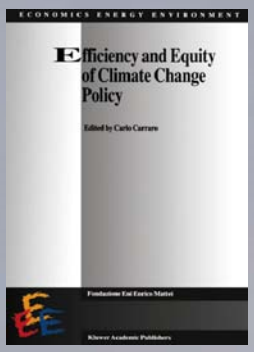
http://www.amazon.com/Kyoto-Protocol-Guide-Assessment/dp/1853835811/ref=sr_1_1?ie=UTF8&s=books&qid=1287515461&sr=8-1



*This process is referred to as '**Contraction and Convergence'** and the intention is for per capita emissions to be capped for all countries at a level that can sustain human life on the planet.*

Shaping Neighbourhoods
Hugh Barton Marcus Grant, Richard Guise

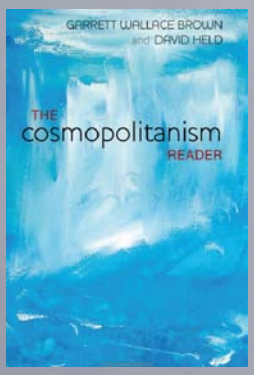
http://www.amazon.co.uk/gp/reader/0415495490/ref=sib_books_pg?p=S00P&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304784861#reader_0415495490



*The long-term perspective with respect to the distribution of rights and their evolution over time. One example would be the so-called '**Contraction and Convergence'** scenario of the Global Commons Institute, which defines emissions permits on the basis of a convergence of per capita emissions.*

Efficiency and Equity of Climate Change Policy
Carlo Carraro

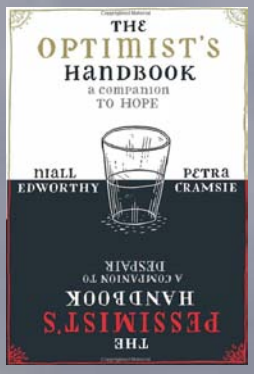
http://www.amazon.co.uk/gp/reader/9048154391/ref=sib_books_pg?p=S09K&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304776415#reader_9048154391



*This doctrine of the highly influential '**Contraction and Convergence'** approach to climate change [Meyer 2000].*

The Cosmopolitanism Reader
Garrett Wallace Brown, David Held

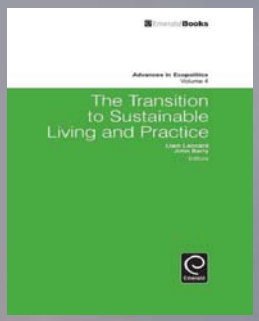
http://www.amazon.co.uk/Cosmopolitanism-Reader-Garrett-Wallace-Brown/dp/074564872X/ref=sr_1_1?s=books&ie=UTF8&qid=1305629806&sr=1-1#_



*Step forward '**Contraction and Convergence'**. This framework conceived by Aubrey Meyer of the Global Commons Institute proposed that the world decides how much more CO2 can be emitted and how to share this.*

The Optimist's/Pessimist's Handbook:
A companion to hope and despair
Niall Edworthy Petra Cramsie

http://www.amazon.co.uk/gp/reader/0552776114/ref=sib_books_pg?p=S01M&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304791361#reader_0552776114



*We need a global system where countries agree to limit their caron dioxide emissions. This chapter outlines the '**Contraction and Convergence'** model - a mechnism for reducting emissions and sharing them equally between world citizens.*

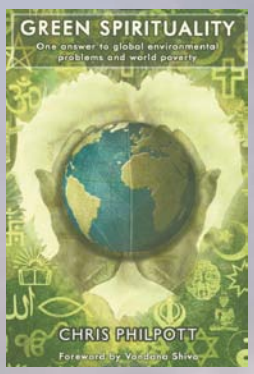
The Transition to Sustainable Living and Practice
Liam Leonard John Barry

http://www.amazon.co.uk/gp/reader/1849506418/ref=sib_books_pg?p=S01U&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304824878#reader_1849506418

*An international '**Contraction and Convergence'** strategy with a reduction of the average worldwide consumption of animal products has been suggested to counteract the risk associated with the growth in meat consumption.*

Challenges for Agricultural Research OECD Publishing

http://www.amazon.co.uk/gp/reader/9264090096/ref=sib_books_pg?p=S05J&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304769597#reader_9264090096



*The slowly increasing acceptance of '**Contraction and Convergence'** which the Global Commons Institute put foward as a means of fairly apportioning global carbon emissions rights on an equal per capita basis.*

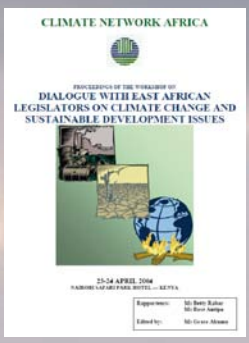
Green Spirituality:
One Answer to Environmental Problems and World Poverty - Chris Philpott

http://www.amazon.co.uk/gp/reader/1452082901/ref=sib_books_pg?p=S06N&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304776884#reader_1452082901

*As an immediate enforcement of the per capita entitlement was politically unworkable, software for the continuous '**Contraction and Convergence'** of per capita emissions was developed by the Global Commons Institute.*

Erfolgreich oder ruinös?
Transnationale Unternehmen und nachhaltige Entwicklung
Kritische Reflexionen aus menschenrechtlicher Perspektive
Johannes Reidel

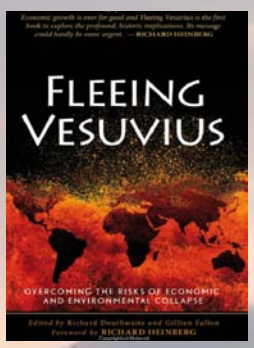
http://www.amazon.co.uk/gp/reader/3865811795/ref=sib_books_pg?p=S0AC&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304780062#_



*The workshop sought to galvanize urgent international support and action for the concept of '**Contraction and Convergence'** policy framework proposed to the United Nations Convention on Climate Change by the Global Commons Institute (GCI) since 1990. The African Group of Nations had proposed during the UNFCCC – COP 3 that a "globally agreed ceiling of GHG emissions can only be achieved by adopting the principle of per capita emissions rights that fully take into account the reality of population growth and the principle of differentiation". The way forward for East African legislators was envisaged as calling for the UNFCCC secretariat to study, evaluate and assess the concept of Contraction and Convergence, and at the same time set the stage for building a global community to support the concept as it added value to the Kyoto Protocol and also encompassed the major principles in the Climate Change Convention such as the Precautionary principle, Polluter Pay principle and the Equity principle.*

PROCEEDINGS OF THE WORKSHOP ON DIALOGUE WITH EAST AFRICAN LEGISLATORS ON CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT ISSUES
23-24 APRIL 2004 NAIROBI SAFARI PARK HOTEL — KENYA

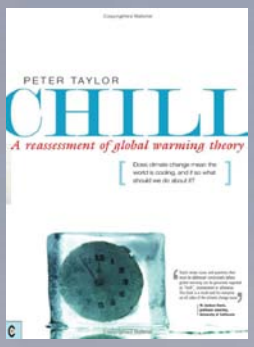
http://www.gci.org.uk/Documents/P985-CNA_Climate-Change_April2004.pdf



*The apportionment formula is of course a thorny question. It might be based on '**Contraction and Convergence'**, the idea of a fair distribution of carbon emissions quotas to all citizens of the the Globe.*

Fleeing Vesuvius: Overcoming the Risks of Economic & Environmental Collapse - Richard Douthwaite, Gillian Fallon

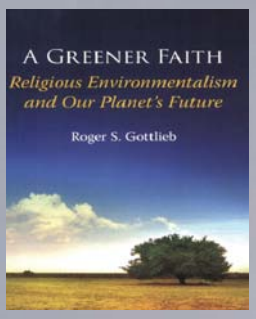
http://www.amazon.co.uk/gp/reader/0865716994/ref=sib_books_pg?p=S07Z&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304775470#reader_0865716994



*'**Contraction and Convergence'** are terms put forward by Aubrey Meyer of the Global Commons Institute proposing a movement towards equal per capita emissions allowances for every planetary citizen and it has gained widespread endorsement.*

Chill, A Reassessment of Global Warming Theory:
Does Climate Change Mean the World is Cooling, and If So What Should We Do About It?
Peter Taylor

http://www2.warwick.ac.uk/fac/soc/csgr/research/workingpapers/2010/26410.pdf



*In a quite radical moral initiative, the WCC also called for "'**Contraction and Convergence'** allowing each country and equal amount of emissions per head.*

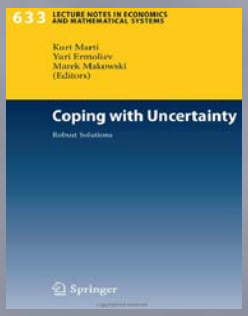
A Greener Faith:
Religious Environmentalism and Our Planet's Future
Roger S. Gottlieb

http://www.amazon.co.uk/gp/reader/0195396200/ref=sib_books_pg?p=S03I&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304857013#reader_0195396200

*The concept of '**Contraction and Convergence'** of carbon emissions has emerged as a leading priinciple for the next round of international negotiations on climate change.*

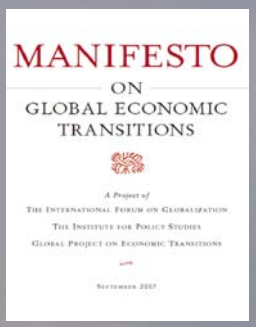
Feelbad Britain: How to Make it Better
Pat Devine Andrew Pearmain, David Purdy

http://www.amazon.co.uk/gp/reader/3865811795/ref=sib_books_pg?p=S0AC&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304780062#_



*A rule that applies equally to all countries as would be the case for instance under the so-called '**Contraction and Convergence'** approach.*

Coping with Uncertainty: Robust Solutions
Kurt Marti, Yuri Ermoliev, Marek Makowski
http://www.amazon.co.uk/gp/reader/3642037348/ref=sib_books_pg?p=S073&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304856610#reader_3642037348



As the currently over-consuming nations of the world proceed to "power down" their energy use, and to reduce material throughputs, while lowering personal consumption levels, overall global impacts can eventually be optimized well below the maximum sustainable capacities of the planet. However, we must remain cognizant of enormous disparities among nations as to present levels of use. Many nations and peoples of the world already live at very low consumption levels; in fact far below levels that can sustain personal, family and/or community well-being. Such disparities among and within nations are often the result of prior or present colonial periods of exploitation. It is unarguable that many countries of the industrial north have achieved their excessive natural resource use by depriving southern countries of theirs, a process that continues in many places today.

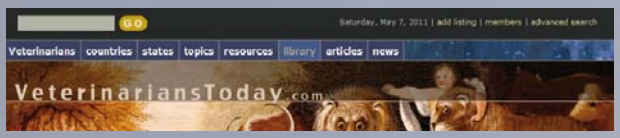
Recognizing this, we believe that each person and community, whether in the industrial North, or the global South, has fundamental rights to "sufficient" food, shelter, clothing, housing as well as sufficient community health and other public services, to sustain a satisfactory level of well-being beyond bare minimum survival needs. (Note: Working definitions of "sufficiency" and a "global sufficiency index" have been proposed and need further development and definition. As part of this project, we hope to soon advance a viable new clear standard.) Meanwhile, the argument is compellingly made by some Southern countries, historically disadvantaged, that they should not be asked to "power down" to the same degree as Northern countries. In the interests of survival, they may often need to increase their material throughputs, and energy use, from renewable sources; not to approach a level of excess consumption, but toward a level of "sufficiency," well within the planet's capacity to sustain.

*Thus, the concepts of "cap and share," or, '**Contraction and Convergence'** have emerged. As wealthy over-consuming countries reduce their activity far below present overconsumptive levels, the goal is for the poorest countries and peoples to bring their levels up until "convergence" or equity is approached. Overall, however, the convergence target must remain far below the maximum sustainable levels for all planetary material throughputs, including total energy use, thus requiring profound net reductions in all areas. To assist this process will require considerable reallocation of planetary resources, wealth and sustainable technologies from the rich countries to the poorest countries and peoples, being certain to avoid the pitfalls and corruptions of prior historic patterns of aid, also usually rooted in colonial contexts. For example, within poor countries there are sometimes very wealthy elite minorities who gained from colonialism and globalization; they are sometimes called "the north within the south." Transfers and contributions from this wealthy class should be included in the domestic equation. (Note: There are a growing number of proposals for how such transfers from North to South might operate, several of which are mentioned in the Resources section. We do not favor any of these proposals above others at this time; all should be studied and debated as to their optimum viability.) Equally important: The interests of equity also require rapid withdrawal of giant export-oriented agricultural corporations from food growing lands in poor countries. These lands have mainly been acquired over years by a variety of unacceptable means—sometimes militarily, or with the help of corrupt regimes—and most recently via the appalling rules of global bureaucracies, including the WTO and World Bank. Lands thus alienated from local people must be returned to the control of local communities and farmers. This in itself would free millions of people to re-assume their traditional local food growing activities that sustained their communities. Ultimately, the goal must be to achieve international accords on formulas that achieve "contraction" and "convergence," i.e., formally mandated global economic formulas that lead to overall economic "contraction"—to live within realistic planetary limits—and "convergence" at an agreed global standard of"sufficiency" for all, as planetary health and resources permit. We believe that such a transition can lead to successful responses to this crisis, increased equity within and among countries, and a renewed sense of personal and global good feeling, well-being and peace.*

MANIFESTO ON GLOBAL ECONOMIC TRANSITIONS
POWERING-DOWN for the FUTURE
Toward a Global Movement for Systemic Change: Economies of Ecological Sustainability, Equity, Sufficiency and Peace, "Less and local" - EDITOR JERRY MANDER

A Project of THE INTERNATIONAL FORUM ON GLOBALIZATION, THE INSTITUTE FOR POLICY STUDIES, GLOBAL PROJECT ON ECONOMIC TRANSITIONS. 09 2007

http://www.swaraj.org/shikshantar/manifesto.pdf



*'**Contraction and Convergence'** is a proposed global framework for reducing Greenhouse gas emissions to combat Climate change. Conceived by the Global Commons Institute in the early 1990s, the Contraction and Convergence strategy consists of reducing overall emissions of greenhouse gases to a safe level where the global emissions are reduced because every country brings emissions Per capita to a level which is equal for all countries. It is intended to form the basis of an international agreement which will reduce Carbon dioxide emissions to avoid Climate change, carbon dioxide being the gas that is primarily responsible for changes in the Greenhouse effect on Earth. It is expressed as a simple mathematical formula. This formula can be used as a way for the world to stabilize carbon levels at any level. Advocates of '**Contraction and Convergence'** stress that negotiations at the United Nations Framework Convention on Climate change are governed sequentially by the 'objective' of the UNFCCC followed by its organising principles. C&C is widely cited and supported www.gci.org.uk endorsements.html The "contraction" part of Contraction and Convergence model calculates the total amount of carbon being put into the atmosphere as a 'path-integral' or a total 'contraction-event'. Future global emissions will shrink over time and the shape and extent of this will depend on the final level of atmospheric carbon considered safe, subject to the changing source-sink relationship in future as future atmospheric GHG accumulation continues.*

VETERINARIANS TODAY

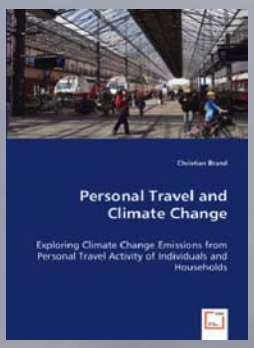
http://www.veterinarianstoday.com/library/Contraction-and-Convergence.php

*Many analysts endorse '**Contraction and Convergence'***

Issues in Political Theory - Catriona McKinnon

http://www.amazon.co.uk/gp/reader/0199217009/ref=sib_books_pg?p=S09U&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304930138#reader_0199217009

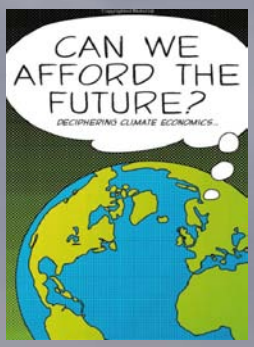
*Avoiding negative environmental and social consequences (Jackson, 1985) - it is the underlying philosophy of the '**Contraction and Convergence'** approach discussed later.*



Personal Travel & Climate Change; Exploring Climate Change Emissions from Personal Travel of Individuals & Households Christian Brand

http://www.amazon.co.uk/Personal-Travel-Climate-Change-Individuals/dp/3639025075/ref=sr_1_149?s=books&ie=UTF8&qid=1305528300&sr=1-149

*One widely discussed idea is '**Contraction and Convergence'** (C&C).*



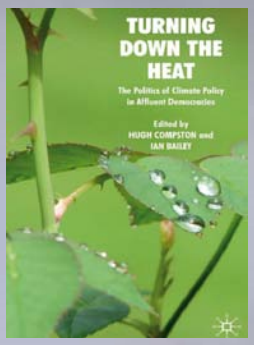
Can We Afford the Future?: The Economics of a Warming World (The New Economics): Deciphering Climate Economics Frank Ackerman

http://www.amazon.co.uk/Can-Afford-Future-Economics-Deciphering/dp/1848130384/ref=sr_1_65?s=books&ie=UTF8&qid=1305554534&sr=1-65#_

*Redress for profligacy, incentives for conservation, allowing resources to be transferred from rich countries to poor ones, thus leading to distributional equity, equity, efficiency and sustainability. A formulation that carries this insight is that of '**Contraction and Convergence'** [C&C]. A market based scheme can work well in achieving cost-effective reductions within this allocation framework. Some have suggested using the C&C and per capita entitlements as the basis for long-term negotiations.*

Climate Change & Developing Countries (Advances in Global Change Research) N H. Ravindranath, J A. Sathaye

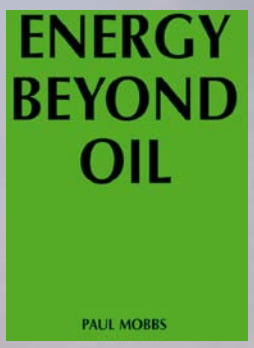
http://www.amazon.co.uk/gp/reader/1402001045/ref=sib_books_pg?p=S06T&keywords=contraction+and+convergence&ie=UTF8&qid=1305564077#reader_1402001045



*The indicator for assessing liability should be emissions per capita. This approach still informs the French approach and bear similarities to the '**Contraction and Convergence'** approch of Meyer [2000].*

Turning Down the Heat:
The Politics of Climate Policy in Affluent Democracies
Dr Hugh Compston, Dr Ian Bailey

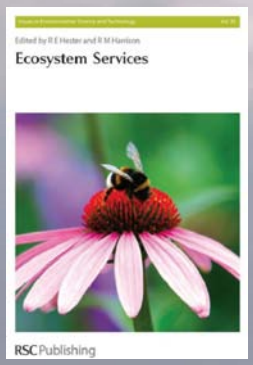
http://www.amazon.co.uk/gp/reader/0230202047/ref=sib_books_pg?p=S03Z&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304926441#reader_0230202047



*The point is made by those promote more drastic solution such as the '**Contraction and Convergence'** promoted by the Global Commons Institute.*

Energy Beyond Oil
Paul Mobbs

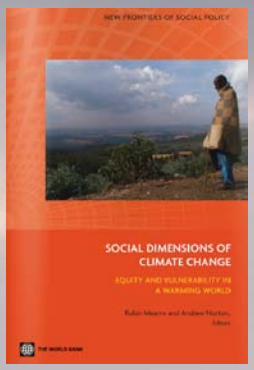
http://www.amazon.co.uk/gp/reader/1905237006/ref=sib_books_pg?p=S02A&keywords=contraction+and+convergence&ie=UTF8&qid=1305529521#reader_1905237006



*Recognising the atmsophere as a global commons '**Contraction and Convergence'** has been put forward to achieve a low carbon economy.*

Ecosystem Services (Environmental Science & Technology)
Erik Gomez Baggethun, John Murlis, Piran White and John B. Thornes

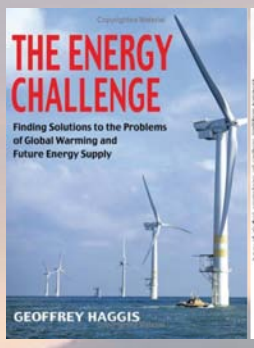
http://www.amazon.co.uk/Ecosystem-Services-Environmental-Science-Technology/dp/1849730180/ref=sr_1_42?s=books&ie=UTF8&qid=1304932595&sr=1-42#_

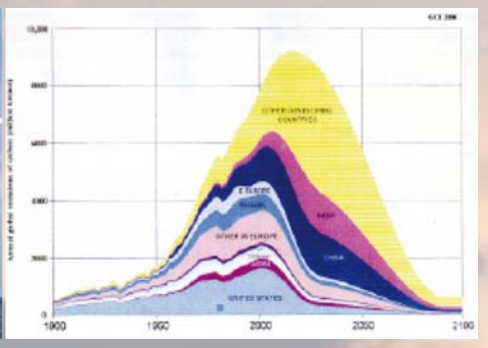


*Fairness in the context of the mitigation of climate change has usually been interpreted to mean '**Contraction and Convergence'.***
http://www.gci.org.uk/Documents/Carbon_Countdown.pdf

Social Dimensions of Climate Change
Robin Mearns, Andrew Norton

http://www.amazon.com/Social-Dimensions-Climate-Change-Vulnerability/dp/0821378872/ref=sr_1_1?ie=UTF8&qid=1305637024&sr=8-1-spell#reader_0821378872

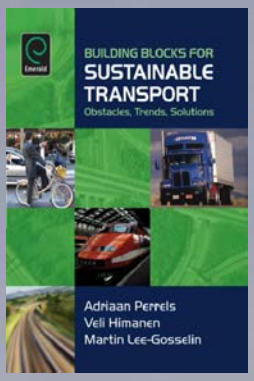




*Aubrey Meyer, a musician, concerned about the problems of implementing the Kyoto Protocol, proposed '**Contraction and Convergence'** which he feels - and surely he is right - has the harmony and internal consistency of music.*

The Energy Challenge
Geoffrey Haggis

http://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Dstripbooks&field-keywords=the+energy+challenge+haggis



*Towards 2030 issues relating to personal tradable emissions are discussed with a view to moving towards a more stringent '**Contraction and Convergence'** global environmental future in the UK with those that need to travel buying credits from those that have spare.*

Building Blocks for Sustainable Transport Adriaan Perrels, Veli Himanen, Martin Lee-Gosselin
http://www.amazon.com/Building-Sustainable-Transport-Adriaan-Perrels/dp/0080447090/ref=sr_1_1?ie=UTF8&s=books&qid=1305637930&sr=1-1#_

*Having reviewed the trends in the use of natural resources and accompanying undesirable environ-mental impacts in the first section of Chapter 2, the last section of that chapter considers possible future implications by presenting three brief scenarios: (1) business as usual (leading to a tripling of global annual resource extraction by 2050); (2) moderate '**Contraction and Convergence'** (requiring industrialized countries to reduce their per capita resource consumption by half the rate for the year 2000); and (3) tough '**Contraction and Convergence'** (aimed at keeping global resource extraction at its current levels). None of these scenarios will lead to actual global reductions in resource use, but all indicate that substantial reductions in the resource requirements of economic activities will be necessary if the growing world population can expect to live under conditions of sustainable resource management. The key message of the tough scenario is that despite population growth to roughly 9 billion people, the pressure on the environment would remain roughly the same as it is now. The emissions correspond approximately to the lowest range of scenario B1 of the IPCC SRES, but are still 20% above the roughly 5.5 GtC/yr advocated by the Global Commons Institute for contraction and convergence in emissions (GCI, 2003).*

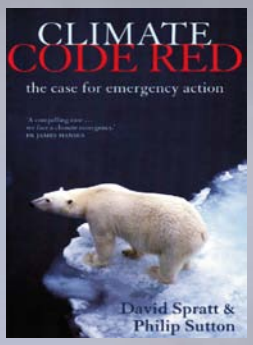
UNEP - DECOUPLING NATURAL RESOURCE USE AND ENVIRONMENTAL IMPACTS FROM ECONOMIC GROWTH
Dr. Ernst Ulrich von Weizsäcker, Dr. Ashok Khosla, Co-Chairs, International Resource Panel (IRP)
http://www.unep.org/resourcepanel/decoupling/files/pdf/Decoupling_Report_English.pdf

*One of the most prominent for emissions allocations are the Global Commons Institute's '**Contraction and Convergence'** approach (Meyer 2001)*

Breaking the Climate Change Impasse with China
Kelly Sims Gallagher Assoc Prof Energy & Environmental Policy
Harvard Project on International Climate Agreements
http://www.gci.org.uk/Documents/Gallagher_Final_5.pdf

*Such aims must be reached through an equitable global climate regime that continues the efforts of the Kyoto Protocol under the umbrella of the United Nations Framework Convention on Climate Change (UNFCCC). At the heart of this regime could be a cap-and-trade philosophy, which stems from the concept of climate justice and has been termed '**Contraction and Convergence'**. The idea is to put a cap on total global emissions and continually reduce the global cap over the years (until 2050, for example) until the cap level is reduced to a targeted sustainable threshold. This means that global greenhouse gas emissions – from industrial production and consumption to land, sea and air traffic – would decrease substantially over the long term (contraction). Emission allocation would start from the status quo and gradually reach an equal per-capita basis (convergence). In practical terms, this means that the per-capita emissions of industrialized countries, which are comparatively much higher at present, will be decreased significantly, while most developing countries may initially increase their per-capita emissions.*

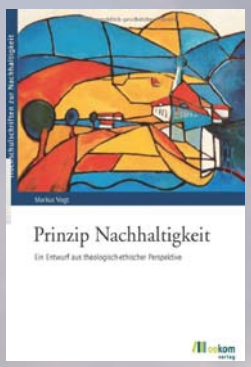
SHARE THE SAME DREAM & IT WON'T BE A DREAM FOR LONG.
Frithjof Finkbeiner, International Coordinator, Global Marshall Plan Initiative, Chairman, Global Marshall Plan, Foundation, Member Club of Rome. James B. Quilligan, Coordinator, Global Marshall Plan, Initiative-USA, Director, Centre for Global Negotiations/Brand 21 Forum
http://www.gci.org.uk/Documents/GMPBrochure_.pdf



*Until recently, most players in the climate-policy arena assumed that while global-warming emissions needed to be cut substantially, they did not need to be reduced to zero, so it would be fair for all people across the globe to share a reduced annual greenhouse-gas limit. Poor people could keep increasing their fossil-fuel use until their emissions reached the limit, and people in rich countries would need to keep reducing their emissions until they reached the same per capita level (a principle known as '**Contraction and Convergence**').*

Climate Code Red
David Spratt and Philip Sutton

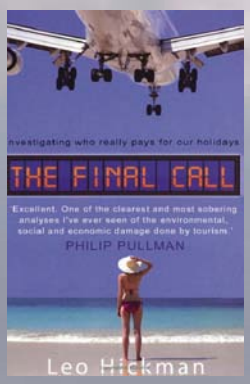
http://www.amazon.co.uk/Climate-Code-Red-Emergency-Action/dp/1921372206/ref=sr_1_1?ie=UTF8&s=books&qid=1305043597&sr=8-1



*'**Contraction and Convergence**' One of the most interesting concepts for a contract for people's CO_2 justice is currently being discussed under the title Contraction and Convergence [C & C]. This is a contract that allows an upper limit global CO_2 emissions [contraction] with a process of gradually approximation to a distribution of emission allowances to egalitaristichen criteria [convergence].*

Prinzip Nachhaltigkeit
Markus Vogt

http://www.amazon.co.uk/Prinzip-Nachhaltigkeit-Entwurf-theologisch-ethischer-Perspektive/dp/3865810918/ref=sr_1_5?ie=UTF8&qid=1305643070&sr=8-5#_



*'**Contraction and Convergence**' - the fairest solution, a simple mathematical truth.*

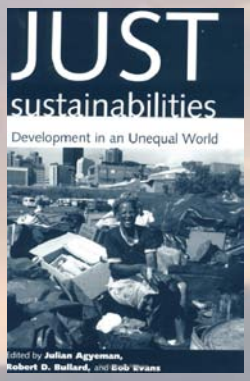
The Final Call: Investigating Who Really Pays For Our Holidays
Leo Hickman

http://www.amazon.co.uk/gp/reader/1905811063/ref=sib_books_pg?p=S0AM&keywords="Contraction+and+Convergence"&ie=UTF8&qid=1304930138#reader_1905811063

*Three scenarios for the year 2050 have been constructed and may be compared to the baseline of the year 2006. The first represents one vision of "business as usual", and the two others are increasingly stringent versions of the '**Contraction and Convergence**' ideas put forward in the climate debate (GCI 2003).*

Towards a low carbon society: Setting targets for a reduction of global resource use
Marina Fischer-Kowalski • Fridolin Krausmann • Julia K. Steinberger • Robert U. Ayres

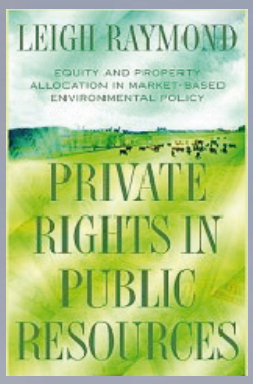
http://constantine.typepad.com/files/towards-a-low-carbon-society-setting-targets-for-a-reduction-of-global-resource-use.pdf



*An equitable alternative would be to allocate consumption or pollution rights according to population, or in accordance with a planned transition to equal consumption. An example of this for fossil fuel use is the '**Contraction and Convergence**' scenario.*

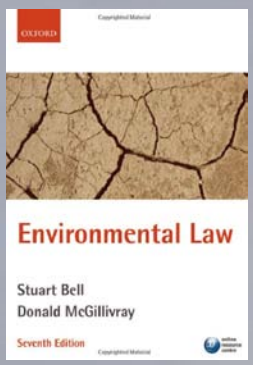
Just Sustainabilities: Development in an Unequal World
Urban and Industrial Environments
Julian Agyeman

http://www.amazon.co.uk/Just-Sustainabilities-Development-Industrial-Environments/dp/0262011999/ref=sr_1_273?s=books&ie=UTF8&qid=1305568794&sr=1-273#_



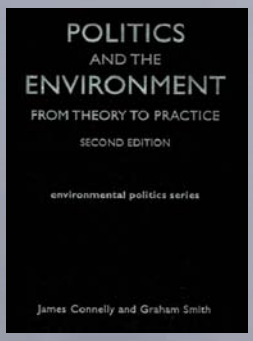
*The '**Contraction and Convergence'** model from some environmental activists is mentioned in the French proposal. If and when Developing Countries receive their own allocations of emissions rights, C&C may become a much more important distributive principle.*

Private Rights in Public Resources: Equity and Property Allocation in Market-Based Environmental Policy
Professor Leigh Raymond
http://www.amazon.co.uk/gp/reader/1891853694/ref=sib_books_pg?p=S059&keywords=contraction+and+convergence&ie=UTF8&qid=1305615886#reader_1891853694



*Domestic Tradable Quotas have strong links with the '**Contraction and Convergence'** proposal to a globally fair allocation of emission rights, under which and over time, states would have emissions rights on a per capita basis.*

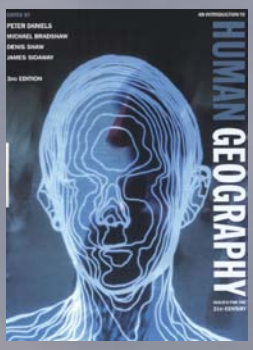
Environmental Law
Stuart Bell Donald McGillivray
http://www.amazon.co.uk/Environmental-Law-Stuart-Bell/dp/0199211027/ref=sr_1_1?s=books&ie=UTF8&qid=1305644783&sr=1-1#_



*The Global Commons Institute has developed a plan '**Contraction and Convergence'**: contraction of overall emissions and convergence of orthern and Southern emissions. The proposal is in many ways a return to and development of the principles of the orgiginal UNFCCC.*

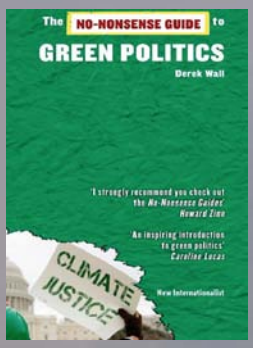
Politics and the Environment: From Theory to Practice
James Connelly, Graham Smith, David Benson

http://www.amazon.co.uk/gp/reader/0415251451/ref=sib_books_pg?p=S07H&keywords=contraction+and+convergence&ie=UTF8&qid=1305613590#reader_0415251451



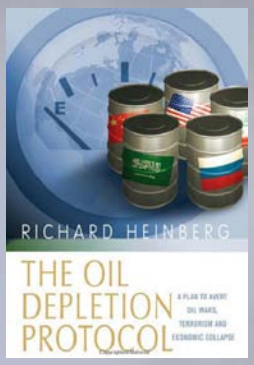
*There is an alternative on the table known as '**Contraction and Convergence'** [C&C]. At COP-9 Milan many representatives admitted privately that, "C&C is what we havebeen waiting for."*

An Introduction to Human Geography:
Issues for the 21st Century
Prof Peter Daniels Prof Michael Bradshaw
Dr Denis Shaw Prof James Sidaway
http://www.amazon.co.uk/Introduction-Human-Geography-Issues-Century/dp/0132056844/ref=sr_1_126?s=books&ie=UTF8&qid=1304928120&sr=1-126#_



*Many Green support the idea of '**Contraction and Convergence'**.*

No-Nonsense Guide to Green Politics Derek Wall
http://www.amazon.co.uk/No-Nonsense-Guide-Green-Politics-Guides/dp/1906523398/ref=sr_1_14?s=books&ie=UTF8&qid=1305553371&sr=1-14#_



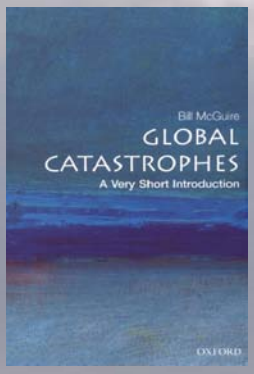
*Some organizations believe that the Kyoto Protocol, while a step in the right direction, could be improved upon. Perhaps the most widely discussed alternative proposal is '**Contraction and Convergence'** from the Global Commons Institute.*

Oil Depletion Protocol:
A Plan to Avert Oil Wars, Terrorism and Economic Collapse
Richard Heinberg

http://www.amazon.co.uk/Oil-Depletion-Protocol-Terrorism-Economic/dp/0865715637/ref=sr_1_213?s=books&ie=UTF8&qid=1305542701&sr=1-213#_

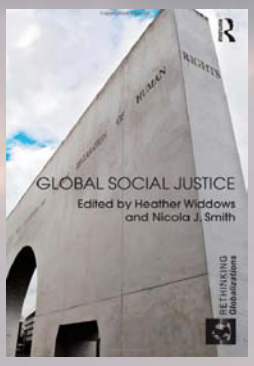
*We know something about the principles that would underlie sustainability and it is possible to suggest measures that would move us in its direction, but reflexivity means that it is impossible to draw up a detailed blueprint. '**Contraction and Convergence'** is the proposal that the total of emissions produced globally should contract over the next few decades. It is under consideration for the future.*

The Principles of Sustainability
Simon Dresner
http://www.amazon.co.uk/Principles-Sustainability-Simon-Dresner/dp/1853838411/ref=sr_1_363?s=books&ie=UTF8&qid=1305614756&sr=1-363#_



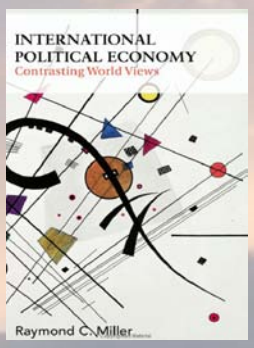
*There is an alternative plan to reduce greenhouse gas emissions on the table that might just start things moving along the road to stabilization and even reduction called '**Contraction and Convergence'** or simply C&C.*

Global Catastrophes: A Very Short Introduction
Bill McGuire
http://www.amazon.co.uk/Global-Catastrophes-Short-Introduction-Introductions/dp/0192804936/ref=sr_1_217?s=books&ie=UTF8&qid=1305543661&sr=1-217#_



*'**Contraction and Convergence'** [Meyer 2000] developed by the Global Commons Institute, allows industrialised countries gradually to reduce their emissions and for developing countries gradually to increase theirs.*

Global Social Justice
Heather Widdows and Nicola J Smith
http://www.amazon.co.uk/Global-Social-Justice-Rethinking-Globalizations/dp/0415579414/ref=sr_1_1?s=books&ie=UTF8&qid=1305292556&sr=1-1#_

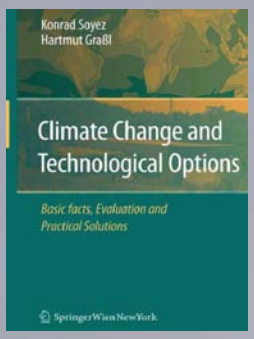


*Not private credit needs of corporations and hedge funds, the '**Contraction and Convergence'** dimension would impose monetary limits and lead to the contraction of the total of greenhouse gas emissions.*

International Political Economy
Raymond Miller
http://www.amazon.co.uk/International-Political-Economy-Contrasting-World/dp/0415384095/ref=sr_1_1?ie=UTF8&qid=1304935924&sr=1-1

*"A global cap is allocated to countries on the basis of a '**Contraction and Convergence'** with the convergence of emissions per capita in 2100 and a linear progression towards this target between 2013 and 2100."*

Economie du Climate Pistes pour apres-Kyoto
Oliver Godard Pierre Ponsard
http://www.amazon.co.uk/Economie-climat-Pistes-pour-laprès-Kyoto/dp/273021576X/ref=sr_1_7?s=books&ie=UTF8&qid=1305392572&sr=1-7#_

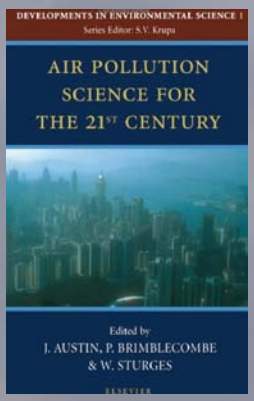


*In 2003 and German Advisory Council has shown for a subdivision into eleven regions none would have to invest more than 1.5% of GDP in a '**Contraction and Convergence'** scenario aiming at equal emissions per capita in all regions to be reached by 2100.*

Climate Change and Technological Options
Hartmut Grassl
http://www.amazon.co.uk/Climate-Change-Technological-Options-Evaluation/dp/3211782028/ref=sr_1_1?ie=UTF8&qid=1304936503&sr=1-1#reader_3211782028

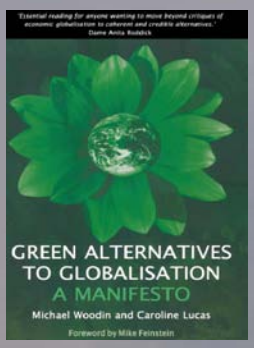
*The Converging World Project is a social enterprise that uses the ideas of '**Contraction and Convergence'** to reduce the differences in resource use.*

Community empowerment and Sustainable Development
Edited by John Blewitt
http://www.amazon.co.uk/Community-Empowerment-Sustainable-Development-Converging/dp/1900322315/ref=sr_1_1?s=books&ie=UTF8&qid=1305645982&sr=1-1



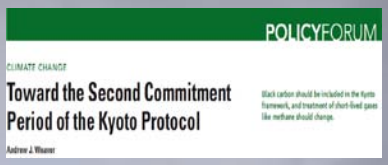
*'**Contraction and Convergence'** [C&C] is a political framework that only work if all parties accept the need to compromise in order to achieve the Convention's ultimate. If this is achieved then C&C is the structure that can form the basis of negotiations regarding global budgets and target dates.*

Air Pollution Science for the 21st Century (Developments in Environmental Science) J. Austin, Peter Brimblecombe, W.T. Sturges
http://www.amazon.co.uk/Pollution-Science-Century-Developments-Environmental/dp/008044119X/ref=sr_1_138?s=books&ie=UTF8&qid=1305563772&sr=1-138



*A robust emissions-trading scheme should be introduced as part of a new iunternation treaty to cut greenhouse gas emissions, based on the '**Contraction and Convergence'** (C&C) model. Under the C&C model each country would be allocated the same per capita allowance for greenhouse gas emissions.*

Green Alternatives to Globalisation: A Manifesto
Michael Woodin, Caroline Lucas
http://www.amazon.co.uk/gp/reader/0745319327/ref=sib_books_pg?p=S032&keywords=contraction+and+convergence&ie=UTF8&qid=1305551395#reader_0745319327

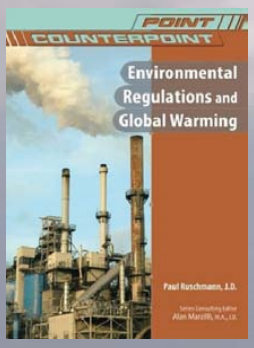


*Under the Copenhagen Accord, it appears that 2°C above preindustrial levels has already been agreed upon. The allowable future cumulative emissions required to keep global warming below this temperature threshold can then be calculated. Determining how such future CO2 emissions are partitioned, perhaps under a '**Contraction and Convergence'**framework, could then be the subject of international negotiations.*

Toward the Second Commitment Period of the Kyoto Protocol Policy Forum, Andrew Weaver, AAAS Science Magazine May 2011
http://www.sciencemag.org/content/332/6031/795.citation

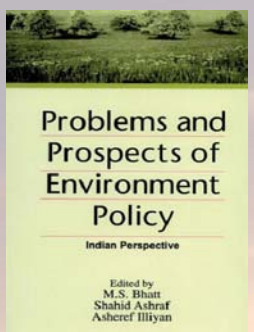
*This manifesto supports the Bolivian government's proposals for a binding global treaty recognising Mother Earth Rights. This will protect the rights of indigenous people, who live in wildernesses or other tribal lands, for all time and make the patenting of any plant species illegal. The only equitable way of halting climate change is through '**Contraction and Convergence'**. We need a democratic global forum to plan to halt the growth in emissions and to mitigate the impacts that are now inevitable. They would draw on all the expertise represented by climate scientists, world food and health experts and support each others' development towards self-government and economic independence.*

Manifesto of Revolutionary Solutions 2011
A World To Win
http://www.gci.org.uk/Documents/ManifestoEbook.pdf



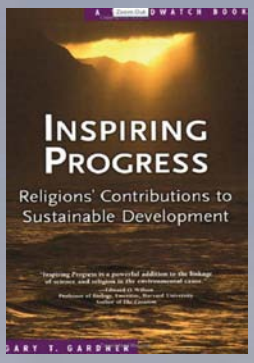
*In 1990, a group of activists led by Aubrey Meyer founded the Global Commons Institute [GCI]. Its objective is to find a solution to global warming that is fair to all inhabitants of the Earth. A GCI publication, '**Contraction and Convergence'**: A Global Solution to a Global Problem, states: "Because everyone - regardless of status - is now increasingly vulnerable to the impacts of climate change, the rich have little choice but to share the burden of contracti on fairly." The GCI presented its original agenda to the Second World Climate Conference in 1990. Later, at the urging of the IPCC, it developed a plan that is now known as '**Contraction and Convergence'** (C&C). The goal of C&C is to reverse the current state of affairs in which industrialized countries account for a growing share of emissions. Developing countries suffer most of the effects of global warming and the two sides cannot agree on how to so solve the problem. The Institute observed, "We consider that a failure to face and secure a global commitment of this kind will result in a perpetual stalemate in the international political process to the extent that the agreement and delivery of global abatement targets will become less and less possible."*

Environmental Regulations and Global Warming Point/Counterpoint: Issues in Contemporary American Society
Paul Ruschmann Alan Marzilli
http://www.amazon.co.uk/Environmental-Regulations-Warming-counterpoint-Counterpoint/dp/1604133325/ref=sr_1_1?ie=UTF8&s=books&qid=1306231222&sr=8-1



*As early as 2000 the Royal Commission on Environmental Pollution [RCEP] recommended the '**Contraction & Convergence'** in its report to Government and the Government's White Paper of 2003. The Insurance industry is the earliest among the business community to recognise the seriousness of global warming and the most concerned to find a quick solution as it impact its bottom line directly. Looking for a real world solution that will truly work the Chartered Insurance Insitute of the UK had no hesitation in accepting contraction & convergence.*

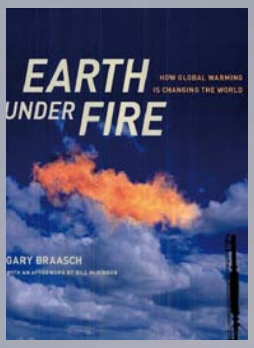
Problems and Prospects of Environment Policy
M S Dhatt, Sahid Ashraf, Asheref Illiyan
http://books.google.com/books?id=MFeoq9hTAZkC&pg=PA169&dq=contraction+and+convergence&hl=en&ei=iq3cTYLpH4iq8AOmyrzuDw&sa=X&oi=book_result&ct=result&resnum=1&ved=0CCgQ6AEwADjSAQ#v=onepage&q=contraction%20and%20convergence&f=false



*The challenge to treat countries according to the Global Ethic might receive a boost. The so-called '**Contraction and Convergence'** [C&C] initiative of the Global Commons Institute in the UK might for example be attractive from this perspective.*

Inspiring Progress: - Religions' Contributions to Sustainable Development - Gary T. Gardner

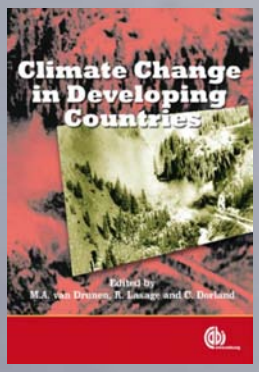
http://www.amazon.com/Inspiring-Progress-Contributions-Sustainable-Development/dp/0393328325/ref=sr_1_fkmr0_2?ie=UTF8&qid=1306230489&sr=8-2-fkmr0



*One of the most highly developed models is '**Contraction and Convergence'** which leads from egalitarian ideals by way of science. The best estimate of the amount of greenhouse gasn a stable atmosphere well short of catastrophic climate change would be the target and nations would move towards it [contraction based on an eventual equal distribution of emissions per person [convergence]. Proponents see the equality as the only way of apportioning 'use' of the atmosphere, which has no boundaries and supports everyone. The Global Commons Institute has been bringing this idea to the international climate meetings since 1990.*

Earth Under Fire - Gary Braasch

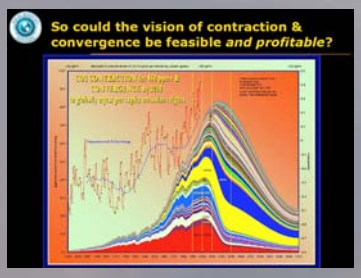
http://books.google.com/books?id=PJJqIighGX0C&pg=PA177&dq=contraction+and+convergence&hl=en&ei=E-TbTdjWL8Or8APWyZEB&sa=X&oi=book_result&ct=result&resnum=2&ved=0CC8Q6AEwATiMAQ#v=onepage&q=contraction%20and%20convergence&f=false



*'**Contraction & Convergence'** a framework for long-term climate policy, is an idea promoted by the Global Commons Institute. The aim is to avoid climate destabilization in an equitable way. The first part starts with the assumption that there is a certain safe level of GHGs in the atmosphere. If this level is exceeded, the world would risk catastrophic effects of climate change. It is difficult to say exactly what the safe level is, but it is commonly agreed that CO2 concentrations should stay within a range of 450-550 part million by volume. On the basis of this the worldwide CO2 emissions can be calculated.To be realistic, contraction should take into account the current CO2 emissions and the growth path of emissions in the short term. In the longer term, there has to be a large contraction of emissions in order to stay within the safe level of for example 450 ppmv in the atmosphere. Based on the agreed upper limit of CO2 concentration combined with a feasible rate of emissions reduction over time a global emissions budget can be set.The second part convergence is about an equitable distribution of the worldwide emissions budget. The ideal would be an equal per capita distribution of the emissions entitlements. This could be done per year and distributed per country. The emissions entitlement should then be tradable between countries. Given population growth and the fact that emissions have to be reduced over time, the per capita entitlements will become less each year. A sudden introduction of an equal per capita distribution of emissions entitlements would not be politically acceptable. The current per capita emissions in developed countries are many times higher than those in developing countries.*

Climate Change in Developing Countries
M van Drunen, R Lasage, C Dorland

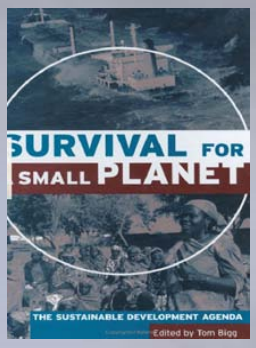
http://www.amazon.com/Climate-Change-Developing-Countries-Michiel/dp/1845930770/ref=sr_1_1?s=books&ie=UTF8&qid=1306237539&sr=1-1



*The equitable vision of '**Contraction and Convergence'** where all countries have the same carbon emission rights per person and everyone continues to get richer, especially in developing countries, could head for carbon reductions around 90% over the next century. Could that grand vision of a richer, fairer, cooler, and safer world actually be feasible and profitable?*

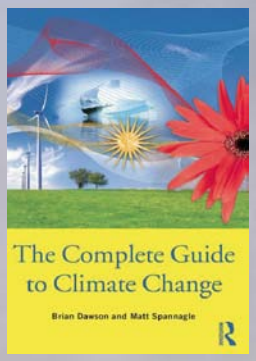
ASAHI GLASS Blue Planet Lecture
Lovins 2007

http://www.gci.org.uk/Documents/Asahi_2007_Lecture_Lovins.pdf



*Environmental Space is an essential prerequisite to make the so-called '**Contraction and Convergence'** approach, now attracting the attention of Climate Convention delegations, viable.*

Survival for a Small Planet - Tom Bigg
http://books.google.com/books?id=I9xDC5-Q9QMC&pg=PA171&dq=contraction+and+convergence&hl=en&ei=HOfbTbiXO4mO8gOpk40P&sa=X&oi=book_result&ct=result&resnum=10&ved=0CFcQ6AEwCTiqAQ#v=onepage&q=contraction%20and%20convergence&f=false



*Equal per capita emissions allocations underlie the **'Contraction and Convergence'** [C&C] framework put forward by organization, such as the Global Commons Institute. Under this approach, annual emissions per capita in different countries would be allowed to converge toward similar levels over time and possibly roughly equate to the rate at which the natural systems can absorh the excess greenhouse gasses in the atmosphere (thus stabilizing concentrations). This would require contractions in emissions by some countries and allow increases in emission, in others. Some also suggest that this should form a basic principle underlying the allocation of emissions caps in a global emiss ions trading system, should one eventually be established. Elements of the principle of C&C have merit and should on equity grounds hold some sway in the international negotiation proces. However, a single equal allocation of emissions rights across the globe is somewhat simplistic and may not necessarily lead to an efficient outcome. Different countries have different resource endowments, different population growth rates ane different opportunities for cost-effective emissions reductions. Countries are also likely to face different transitional constraints and adjustment burdens. These differences would at least to some extent need to be reflected in any negotiated agreement to ensure that they did not present perverse incentives or excessive burdens to particular countries. The allocution of emissions rights would also need to take into account international flows of embodied emissions. Understandably, there is resistance to the C&C principle alliong countries that have high per capita emission levels.*

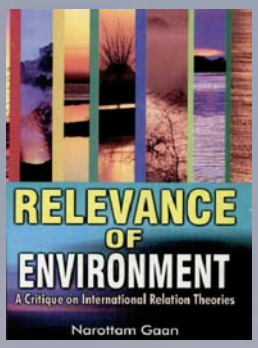
The Complete Guide To Climate Change - Dawson & Spannagle
http://books.google.com/books?id=nnT9EuGy85EC&pg=PA135&dq=contraction+and+convergence&hl=en&ei=zcPbTaTlHcOo8QP4yezlDw&sa=X&oi=book_result&ct=result&resnum=1&ved=0CCgQ6AEwADg8#v=onepage&q=contraction%20and%20convergence&f=false

*Some proposals compensate the potential burden on developing nations with generous emissions allocation, whether as a simple strategy to obtain developing countries support for the regime or in a realisation of the global equity principle borrowed from social justice. A famous such proposal is **'Contraction and Convergence'** developed by Aubrey Meyer.*

Act Locally Trade Globally - Emissions Trading for Climate Policy
Organisation for Economic Cooperation and Development IEA
http://books.google.com/books?id=Mpba74EPLZAC&pg=PA174&dq=contraction+and+convergence&hl=en&ei=KQfcTd3rDIyq8APUhoUD&sa=X&oi=book_result&ct=result&resnum=3&ved=0CDIQ6AEwAjiAQ#v=onepage&q=contraction%20and%20convergence&f=false

*One of the most prominent emissions allocations is the Global Commons Institute's **'Contraction and Convergence'** approach (Meyer 2001)*

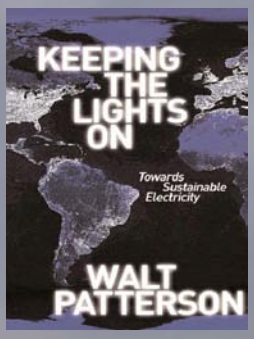
Breaking the Climate Change Impasse with China
Harvard University BELFER Centre
http://www.gci.org.uk/Documents/Gallagher_Final_5.pdf



Support from unexpected quarters came as a welcome surprise for developing countries such as India, which have demanded thai intcrnational climate change negotiations be based on the principle of equity. A report released by the UK's Royal Commission on Environmental Pollution (RCEP) in June 2000 said that an effective, enduring and equitable climate agreement will require greenhouse gas (GHG) emission quotas to be allocated to nations on a simple and equal per capita basis. The UK government is expected to respond in writing in the form of a commentary on the report, an explanation of how existing policies and programmes can be reconciled with it and what new policies - if any - the govemmenl is considering in light of the report. So far, the UK has held a position of indifference towards the South's demand to calculate GHG emissions on a per capita basis as each human being has an equal entitlement to the atmosphere. As a system of per capita entitlements cannot enter into force immediately, the report proposes ***'Contraction and Convergence'****. "Initially shares are 'as is', that is, approximately proportionaito each country's income", explains Aubrey Meyer from the London-based Global Commons Institute, a leading advocate of this approach. ''Over an agreed future period of years however, all countries will converge on the same allocation per head of their population in a base year to be agreed. This means the quotas of industrialized countries fall year by year, while those of developing countries rise until all nations emit equal amounts of GHG per head (convergence). The RCEP report proposes 2050 as the year for convergence. It will also be cut-off date for national populations, that is, further changes in acountry's population will not affect its emissions quotas. From then on, after convergence has been achieved, the quotas of all nations would decline together at the same rate (contraction). According to the report, commentators on climate diplomacy have identified contraction and convergence as the leading contender among the various proposals for allocating emissions quotas to nations in the long run. To make an agreement based on per capita allocation quotas more feasible. The report supports emission trading between nations. Countries that wish to emit GHG in excess of their respective quotas would be able to purchase unused quotas at prices that incline other countries to emit less than their quotas.*

Relevance of Environment
Narottam Gaan

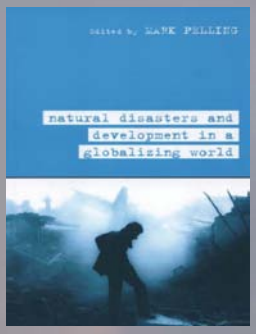
http://www.amazon.com/Relevance-Environment-Narottam-Gaan/dp/817835411X/ref=sr_1_fkmr1_1?ie=UTF8&qid=1306234716&sr=8-1-fkmr1



They invite governments to initiate a process of ***''Contraction and Convergence'****, by allocating carbon allowances, whereby those who emit too much carbon buy allowances from those who do not.*

Keeping the Lights On
Walt Patterson

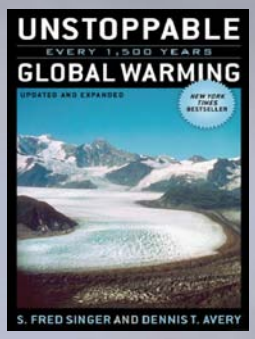
http://books.google.com/books?id=fNXmtP3QukYC&pg=PA23&dq=contraction+and+convergence&hl=en&ei=hb3cTdyfG82z8QO3hoj4Dw&sa=X&oi=book_result&ct=result&resnum=1&ved=0CCgQ6AEwADisAg#v=onepage&q=contraction%20and%20convergence&f=true



Ideally global emissions have to contract to an end-point [concentration level of say 550 ppmv] and converge by a given date [say 2050]. This approach is formally known as ***'Contraction and Convergence'*** *and was created by Aubrey Meyer of the Global Commons Institute.*

Natural Disasters and Development in a globalizing world
Mark Pelling

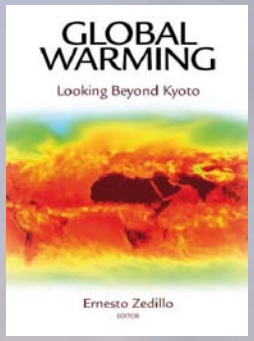
http://books.google.com/books?id=yzluB_S3xYkC&pg=PA126&dq=contraction+and+convergence&hl=en&ei=ULLcTfvqAoiw8QPUn6TqDw&sa=X&oi=book_result&ct=result&resnum=9&ved=0CEgQ6AEwCDjmAQ#v=onepage&q=contraction%20and%20convergence&f=false



*A new climate treaty would at least pay lip service to the obligations of developing nations, although it could probably not require them to reduce emissions. Instead, a new Kyoto might be shaped by the notion of **'Contraction and Convergence'** [Meyer 2000] now popular in European environmental circles.*

Unstoppable Global Warming
Fred Singer Dennis Avery

http://books.google.com/books?id=mFl6YYsRNpgC&pg=PA231&dq=contraction+and+convergence&hl=en&ei=KQfcTd3rDIyq8APUhoUD&sa=X&oi=book_result&ct=result&resnum=2&ved=0CCwQ6AEwATi-AQ#v=onepage&q=contraction%20and%20convergence&f=false



*Eventually, the developing countries will need to graduate and join the industrial world with binding caps. This process could build a **'Contraction and Convergence'** path.*

Global Warming - Looking Beyond Kyoto
Ernesto Zedillo, Ponce de León

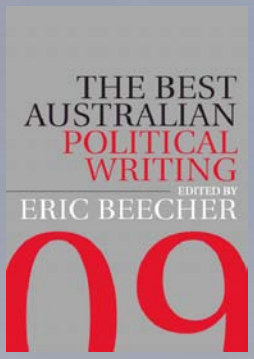
http://books.google.com/books?id=NPUBsNEphrQC&pg=PA110&dq=contraction+and+convergence&hl=en&ei=HOfbTbiXO4mO8gOpk40P&sa=X&oi=book_result&ct=result&resnum=7&ved=0CEgQ6AEwBjiqAQ#v=onepage&q=contraction%20and%20convergence&f=false

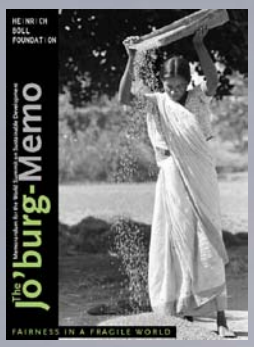
WHOSE ATMOSPHERE?

*The IPCC low concentration scenario results in a CO2 concentration of 450 ppmv CO2 and a total greenhouse gas concentration equivalent to about double pre-industrial levels. TIlis would produce a long. term temperature increase of about 2.5·C at the present best estimate of climate sensitivity. However, it is difficult to maintain that such a target would be tolerable with respect to the human rights of considerable sections of the world population. A lower target is required. taking into account not only the aggregate cost of dimate change mitigation, but also protection of the inalienable livelihood rights of la rge numbers of world cit izens. The Climate Action Network has therefore called for a target which keeps the global mean temperature increase below 2"C above pre·industrial levels, with the temperature being reduced as rapidly as possible after the time that it peaks. Such a target is unlikely to be 'safe", but the probability of a large scale dangerous change would be lowered for most regions. So far, both Northern and Southern governments - apart from the Island States - have shown little interest in defining low danger emission caps in the climate negotiations. All parties disregard the fact that when it comes to capping emissions, the choice is between human rights and the need for affluence. The task of keeping the temperature rise below 2'C appears too large, and too threatening to the economic interes ts of consumers and corporations. In particular, it still seems to have escaped the attention of Southern countries that dimate protection is of the utmost importance for the dignity and survival of their own people. It is time they become protagonists of climate protection, because climate protection is not simply aoout crops and coral reefs, but fundamentally aoout human rights. The point of convergence of North and South on equal emission levels cannot be achieved at the expense of contraction , i.e. the transition to globally sustainable levels of emissions. Once again, susta inability gives rise to equity. Indeed, the vision of **'Contraction and Convergence'** combines ecology and equity most elegantly; it starts with the insight that the global environmental space is finite, and attempts to fairly share its permissible use among all world citizens. taking into account the future generations as well.*

Ethical Aspects of the Convention on Climate Change
Wolfgang Sachs

http://books.google.com/books?id=J2eh2B1nce4C&pg=PA98&dq=contraction+and+convergence&hl=en&ei=DqrbTZDvHsep8QOVk7zwDw&sa=X&oi=book_result&ct=result&resnum=8&ved=0CEoQ6AEwBzge#v=onepage&q=contraction%20and%20convergence&f=false





For many years, most environmentalists who have been involved in the international debate have agreed that in the long term the international sharing of the emissions reduction burden should be based on per capita allocations. There is thus widespread support for the ***'Contraction and Convergence'*** *model as the only principle that can include developing countries in a fair way. It is thus gratifying to see this principle adopted by Professor Ross Garnaut.*

The Best Australian Political Writing
Eric Beecher

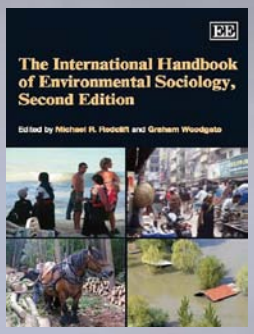
http://books.google.com/books?id=gwbUiNK-ulQC&pg=PA207&dq=contraction+and+convergence&hl=en&ei=KQfcTd3rDIyq8APUhoUD&sa=X&oi=book_result&ct=result&resnum=8&ved=0CE8Q6AEwBzi-AQ#v=onepage&q=contraction%20and%20convergence&f=false

Contraction and Convergence

Capping greenhouse gas emissions globally is indispensable for maintaining the integrity of life on the planet. Sixty percent in six decades is roughly the order of magnitude contraction requires. However, the Kyoto Protocol so far fails to live up to this challenge. It does not demand serious reductions from the North, and does not include newly industrializing countries from the South. Nevertheless, for the second commitment period of the Kyoto process, an ecological breakthrough cannot be reasonably expected unless the South assumes commitments as well. Otherwise, the North will stall, and, more importantly, the steep rise in emission levels in the South will continue unchecked. At this point, the issue of equity will reveal itself as the major bottleneck for any serious progress in climate protection. On the one side, the South will refuse obligations before the North follows through on its responsibility, while on the other side the North will not be forthcoming before commitments for the South are defined. Unless the reduction commitments of the North and those of the South are balanced out in fairness, no real climate protection will happen. Only a framework that respects the principle of equal per capita right to the resources of this Earth will eventually hold up to equity and fairness. Any other allocation scheme ("grandfathering", "cost-base ") would repeat a colonial constellation of granting disproportionate shares to the North. If the use of the commons has to be restrained through common rules, it would violate the principle of equity to design these rules to the advantage of some and the disadvantage of many. The equal right of all world citizens to the atmospheric commons is therefore the cornerstone of any viable climate regime. Therefore, for the second commitment period of the Kyoto Protocol, a process allocating emission allowances based on per capita equal rights to each country, has to be initiated. This is hard on the North, but not unfair as in exchange for accepting the rule of egalitarianism in the present, industrial countries would not be held liable for emissions accumulated in the past. It is from this right to atmospheric commons that all countries (and all classes) in the long run converge in their trajectories upon a similar level of fossil energy use per capita. The North contracts downwards, and the South converges upwards. Over-users will have to climb down from the present level, while under-users are permitted to raise their present level, albeit at a gradient that is much less than the one industrial countries went through historically, levelling off at the point of convergence. However, the convergence of North and South on equal emission levels cannot be achieved at the expense of contraction, i.e. the transition to globally sustainable levels of emissions. Once again, sustainability gives shape to equity. The vision of ***'Contraction and Convergence'*** *combines ecology and equity most elegantly; it starts with the insight that the global environmental space is finite and attempts to fairly share its permissible use among all world citizens taking into account the future generations as well.*

The Jo'burg Memo
Heinrich Boell Foundation

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

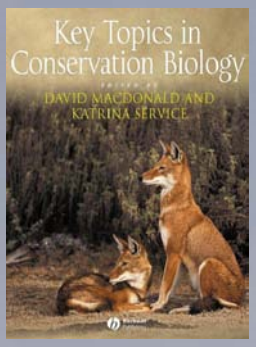


Contraction and convergence

What would it imply to bring the world to a greater level of resource justice? The vision of 'contraction and convergence' (Meyer, 2000) anticipates two different development paths: one for industrial countries: one for developing countries, All nations of the world would adjust their use of resources so that in half a century from now they no longer overstretch the absorption and regeneration capacity of the biosphere, Since no nation has the right to a disproportionate share of the global environment, each one endeavours - though with individual variations - to achieve the common goal of material and energy consumption compatible with the demands of other countries, while remaining within the carrying capacity of the biosphere.

In the end, there is no justification for any other distribution of globally important resources: the right of all nations to a self-defined and equal development permits it only to make claims that are socially and ecologically sustainable al a global level. Given that the industrial countries excessively occupy the global environmental space, it follows that they are called upon to contract - that is, that they reduce their consumption of resources drastically. Resource justice in the world crucially depends on whether the industrial countries are capable of retreating from overconsumption of the global environment. The example of greenhouses gases may serve to illustrate the path of shrinking resource consumption. By the middle of the century, the over-consumers must reduce by 80 to 90 percent the strain they put on the atmosphere by burning fossil fuels, in order to do justice to the precepts of both ecology and fairness. Clearly, the need to reduce fossil fuel consumption and carbon emissions applies to the 'global North', which includes the wealthy consumer classes of the South. On the other hand, the contraction and convergence perspective sees developing countries as tracing an upward curve in resource consumption. First, poorer countries have an unquestionable right to attain at least a 'dignity line' of resource consumption that should apply to all citizens of the world. Without access to kerosene or biogas, without an energy and transport infrastructure, it is hard to satisfy even the basic needs of human life. Moreover, each country will try to achieve different images and forms of a prosperous society - an ambition that in turn requires access to resources such as energy, materials and land. However, this upward movement ends at an upper line of ecological sustainability for all; natural limits set the framework for justice. As it happens, a number of emerging economics are already about to hit that limit in the coming decade. The conceptual model of ***'Contraction and Convergence'*** *thus combines ecology and justice. It begins with the insight that environmental space is finite, and it ends with a fair sharing of the environment by the citizens of the world. It was as early as October 1926 that Mohandas Gandhi sensed the impasse of development. In one of his columns for Young 'lit/iII, the mouthpiece of the Indian independence movement, he wrote 'God forbid that India should ever take to industrialization after the manner of the West. The economic imperialism of a single tiny island kingdom (Britain) is today keeping the world in chains. If an entire nation of 300 million took to similar economic exploitation, it would strip the world bare like locusts.' More than 80 years later the wider implications of this statement have lost none of its relevance. Indeed, its importance has increased, since today there are no longer 300 million but 1000 million setting out to imitate the model of development that began in Britain with the Industrial Revolution. Gandhi suspected that it would not be possible to restore India's dignity, and still Ie» China's or Indonesia's, at the economic level of Britain. The biophysical limits to the spread of the Euro-Atlantic civilization have impressively confirmed Gandhi's intuition.*

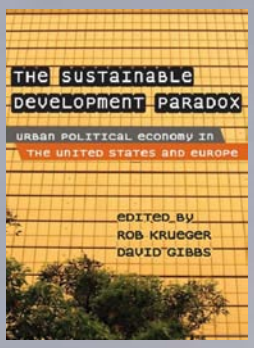
The International Handbook of Environmental Sociology
Michale Redclift and Graham Woodgate
http://books.google.com/books?id=fyhhWgou1p4C&pg=PA273&dq=contraction+and+convergence&hl=en&ei=DqrbTZDvHsep8QOVk7zwDw&sa=X&oi=book_result&ct=result&resnum=4&ved=0CDgQ6AEwAzge#v=onepage&q=contraction%20and%20convergence&f=false



*One widely accepted proposal is to stabilize emissions at 450 ppmv through a process of **'Contraction and Convergence'**, permitting the developing world to grow economies and emissions while the developed world reduces emissions so that the two converge at roughly equal per capita allocations by 2050, perhaps as a result of trading in carbon permits.*

Key Topics in Conservation Biology
David McDonald Katrina Service

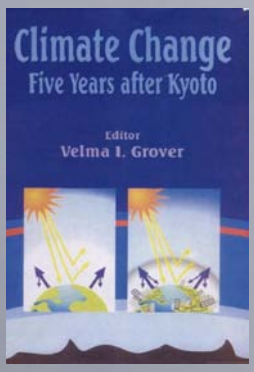
http://books.google.com/books?id=YwgJZU-tXgwC&pg=PA98&dq=contraction+and+convergence&hl=en&ei=D9XbTf7MI9Go8APxoZz4Dw&sa=X&oi=book_result&ct=result&resnum=10&ved=0CE8Q6AEwCThk#v=onepage&q=contraction%20and%20convergence&f=false



***'Contraction and Convergence'** - the concept increasingly being taken up international agencies referes to the need to reduce consumption among wealthy states to enable poorer states to raise their standard of living. A similar commitment is needed at the smallest scale so that gender equality can be harnessed to reduce negative envrionnmental impact on the whole population, not just those who have the power and wealth [as currently obtains] or the visibility [the risk of the current environmental movement] to affect policy.*

The Sustainable Development Paradox
Rob Krueger David Gibbs

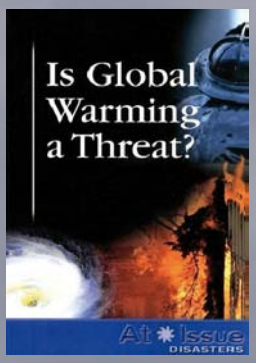
http://books.google.com/books?id=XqjE8zuNjtEC&pg=PA89&dq=contraction+and+convergence&hl=en&ei=q-_bTZIiiaHxA52YwPQP&sa=X&oi=book_result&ct=result&resnum=4&ved=0CDcQ6AEwAzi0AQ#v=onepage&q=contraction%20and%20convergence&f=false



*Under what we have termed a "Beyond Kyoto" scenario, all nations would pursue the goals of **'Contraction and Convergence'** [Meyer 2000] consistent with the IPCC's findings on carbon-carrying capacity and principles of equity and sustainability. The purpose of the collective effort in this case is to begin the process of withdrawing society from activities presumed appropriate for designing nature. Instead humanity would embrace the goal of restoring a commons relation between society, the atmosphere and climate.*

Climate Change Five Years After Kyoto
Velma Grover

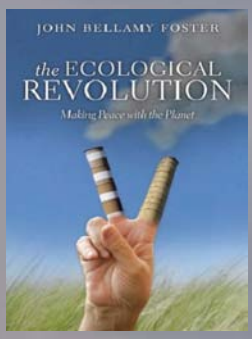
http://books.google.com/books?id=vrZ_xDHpH5cC&pg=PA447&dq=contraction+and+convergence&hl=en&ei=q-_bTZIiiaHxA52YwPQP&sa=X&oi=book_result&ct=result&resnum=7&ved=0CEcQ6AEwBji0AQ#v=onepage&q=contraction%20and%20convergence&f=false



***'Contraction and Convergence'**- a mathematical equation, of a convergence towards equal per-capita carbon allocations in the context of a contraction of overall global emissions. This is the framework known as contraction and convergence.*

Is Global Warming a Threat
David Haugen Susan Musser

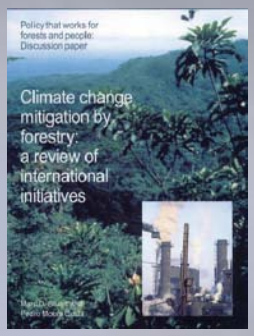
http://books.google.com/books?id=8WsRAQAAIAAJ&q=contraction+and+convergence&dq=contraction+and+convergence&hl=en&ei=Ps_bTea8KY-p8AOlrbHyDw&sa=X&oi=book_result&ct=result&resnum=7&ved=0CEIQ6AEwBjhQ



*Ecological debt proponents advocate a process of **'Contraction and Convergence'***

The Ecological Revolution: Making Peace with the Planet
John Bellamy Foster

http://www.amazon.co.uk/Ecological-Revolution-Making-Peace-Planet/dp/158367179X/ref=sr_1_1?ie=UTF8&qid=1306313047&sr=8-1



*Exporing the inter-nation equity implications for forestry of the **'Contraction and Convergence'** principle of Kyoto i.e. where rich nations contract and poorer nations expand, until some point presumably where we all have similar ecological space.*

Climate Change Mitigation by Forestry
A Review of International Initiatives
Marc Stuart, Pedro Moura Costa

http://books.google.com/books?id=1-WUysFvfmYC&pg=PR4&dq=contraction+and+convergence&hl=en&ei=KQfcTd3rDIyq8APUhoUD&sa=X&oi=book_result&ct=book-thumbnail&resnum=10&ved=0CFsQ6wEwCTi-AQ#v=onepage&q=contraction%20and%20convergence&f=false

*Per Capita Convergence - derived from the Global Commons Institute (GCI) **'Contraction and Convergence'** proposal - in which the target is to converge to an equal per capita emission at a certain period in the future, here 2050*

Economic Aspects of Climate Change Policy
Bert Willems Johann Eyckmans Stef Proost

http://books.google.com/books?id=PWWuuu5hKiMC&pg=PA38&dq=contraction+and+convergence&hl=en&ei=Ps_bTea8KY-p8AOlrbHyDw&sa=X&oi=book_result&ct=result&resnum=9&ved=0CEwQ6AEwCDhQ#v=onepage&q=contraction%20and%20convergence&f=false

Population Growth and Climate Change
Optimum Population Trust Statement

*OPT recommends: - "That the principle of **'Contraction and Convergence'** (rich and poor converging towards a common per person emissions target) be accepted as an equitable starting point for distributing total tolerable carbon emissions, provided that this is allocated to states on the basis of their population size at a specific date. This would encourage the adoption of population restraint policies; whereas allocation on a simple per person criterion would encourage continued population growth, thus continuously reducing every person's carbon entitlement."*

Statement endorsed by: -

Sir David Attenborough
Naturalist, Broadcaster and wildlife film-maker*

Prof Sir Partha Dasgupta
Frank Ramsey professor of economics, University of Cambridge*

Prof Paul Ehrlich
Professor of population studies, Stanford University*

Prof John Guillebaud
Emeritus Prof family planning, University College, London*

Susan Hampshire
Actor and population campaigner*

James Lovelock
Gaia scientist and author

Professor Aubrey Manning
Pres Wildlife Trust, Emeritus Prof Natural History, Edinburgh University

Professor Norman Myers
Visiting Fellow, Green College, Oxford University*

Sara Parkin
Founder/Dir and trustee, Forum for the Future*

Jonathon Porritt
Founder/Dir, Forum for the Future; Fmr Chair, UK Sus. Dev. Commission*

Professor Chris Rapley
Former director, the British Antarctic Survey

"The Optimum Population Trust" on C&C
http://www.optimumpopulation.org/submissions/climatechange09.pdf

Letter to Minister Chris Huhne with signatories also at: -

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

"Contraction and Convergence is a prime example of a UNFCCC-compliant Global Climate Change Framework. It is a rational formulation for reconciliation of 'Climate Justice without Vengeance'. Several ideas derived from C&C have surfaced since Kyoto with ideas that can be perhaps in various ways incorporated into C&C. However, there is an overwhelming need for an over-arching UNFCCC-compliant Framework that enables the globally competing interests of the over-consuming and the under-consuming to be reconciled with each other and with the objective of the UNFCCC in a non-random manner. We feel that C&C is the veteran and indeed the apex example of this and urge you to consider our request. At Kyoto 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." The adversarial reasons for their withdrawal then were in play again at COP-15: - http://www.gci.org.uk/public/COP_15_C&C.swf C&C answers this in a unifying and constitutional way and the need for this answer becomes increasingly critical."

Colin Challen
Former Chair UK All Party Parliamentary Group on Climate Change

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Department of Biochemistry, University of Cambridge,
Former Chairman of the Royal Commission on Environmental Pollution

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Professor in Engineering for Sustainable Development in the UK
Fellow of St Edmund's College Cambridge

Professor Martin Rees
Trinity College Cambridge

Sir John Houghton
President, John Ray Initiative

Michael Hutchinson
CEO Tangent Films

The Rt Revd & Rt Hon Richard Chartres KCVO DD FSA
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Ruth Reed
President Royal Institute of British Architects [RIBA]

Sunand Prasad
Former President of RIBA

Maneka Gandhi
Member of Parliament India

David Wiggins
Wykeham Professor of Logic, Emeritus, Oxford University

Lord David Puttnam
Film Producer

Jack Pringle
PPRIBA Hon AIA FRSA Dip Arch BA(hons)
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Chair Article [25] (UK reg. charity 1112621 for Development and Disaster Relief)
Vice Chair Construction Industry Council (CIC)
Council Member International Union of Architects (UIA)
Past President Royal Institute of British Architects (RIBA)
Commandeur Des Arts et Lettres

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Emeritus Professor of Natural History, University of Edinburgh

Tim Livesey
The Archbishop of Canterbury's Secretary for Public Affairs

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Roger Arthur Graef OBE
criminologist and film-maker

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University College London

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Professor Emeritus LSE

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Board Member, Climate Institute, Washington DC

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Professor Lord Smith of Clifton

Peter Head,
Chairman of Global Planning Arup.

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Professor Alan Maryon-Davis
President, UK Faculty of Public Health

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Emeritus Professor of Family Planning & Reproductive Health, UCL

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Steven Earl Salmony
AWAREness Campaign on The Human Population [estab. 2001]

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Director, Sustainable Footprints

Keith Taylor
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Jean Lambert
Green MEP

Caroline Lucas MP
Tim Yeo MP
Chairman of the House of Commons Energy and Climate Change Committee

Martin Caton MP
Joan Walley MP
Paul Flynn MP
Jo Swinson MP
Rt Hon Michael Meacher MP
UK House of Commons

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Norwich Green Party and University of East Anglia Philosophy Department

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Green Party Group London Assembly

Darren Johnson AM
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Head of CSR - SThree plc

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Andrew Dakers
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Managing Director, Strong Language Ltd.

Stephen Thomson,
Editor, Plomomedia.com

Peter Martin
Research Director CarbonSense

Dave Yates
Newport Friends of the Earth

Dr Michael Taylor
Retired Teacher

Terry Wyatt
Jo Abbess
BSc

Miles Litvinoff
writer

John Cossham
Milena Buchs
Stan Mowatt
Chemistry Teacher

Audrey Urry
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Chris Keene
Green Party

Dr Clive R Sneddon
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Wind Energy Consultant

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PhD Maths Dept Budapest University

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Civil Servant

Penney Poyzer
Author and Broadcaster

Jeffrey Newman
Earth Charter

Kate Prendergast
Freelance consultant, member Crisis Forum

Mr Leo Giordano
Homes and Communities Agency

Rev. Canon Peter Challen
Christian Council for Monetary Justice

Alex Lawrie
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Chair, The Ecological Land Co-operative

John Whiting
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Sabine McNeill
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Dr. Robert Davis
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Clare Palgrave
Chair; Woking Local Action 21

Scott Ainslie
Susan Chapman
BA (Theol) Retired Teacher

Georgia Meyer
Teacher

Lucinda Cridland
Sophie Rees
Zahra Akram
Laura Mccutcheon
Rhiannon Dorrington
Pippa Bartolotti
Carolyn Kelley Gopalan
Prakash Natarajan
IT Director

Brian Wills
Philip Valentino
The Food and More Project

Owen Clarke
Green Party Torfaen

Ms Mary Scott
Environmental consultant

Angie Zelter
Reforest the Earth

Nina Venkataraman
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Writer - London

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Chris Speyer
Writer

Diana Korchien
Publisher of Calendar of Climate Change (2007, 2008, 2009)

Transition Leytonstone

Ros Bedlow
Transition Leytonstone

Roisin Robertson MICHT VTCT
Janice Connully
Womens Theatre

Julie Baker
Community Artist

Al Dutton
Alan Francis
Green Party Transport Speaker

Brig Oubridge
Former Director, Big Green Gathering

John Moore
Green Radio

Simon Eastwood
Steve Muggeridge
Director Big Green Gathering

Linda Benfield
Director Big Green Gathering

Helena Schnitner
Big Green Gathering Independent Astrologer

Alan Turnbull
Director Floating Lotus

Ossie Bash-Taqi
Chef

Hugo Charlton
Barrister

Eileen Noakes

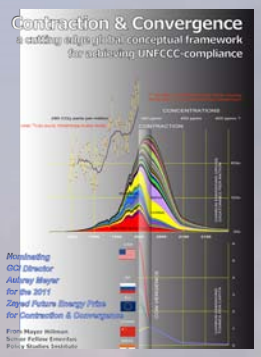
Support for Saskawa Prize Nomination 2003

Support for Funding Appeal 2009

Support for GCI advocacy

Support Individuals for C&C advocacy

Support Organisationsfor C&C advocacy



Aubrey's effort to keep the C&C approach visible at the centre-ground of UN climate politics has substantially paid off. It resulted in the adoption and advocacy of C&C by the UK Royal Commission on Environmental Pollution [RCEP] in 2000. After that he published a body of evidence on C&C for the UK Parliamentary Select Committees who in turn have repeatedly published reports strongly advocating C&C to successive UK Governments. In the light of all these recommendations, this has resulted in the UK Climate Act [2008] being clearly based on C&C. Awarding this Prize to Aubrey Meyer for Contraction & Convergence, could be invaluable in achieving consensus on the global deal needed for success at the UNFCCC. It would not just be a recognition of his effort, it would send a strong signal to the UN saying that to survive, we must finally transcend the politics of blame and join together globally in this constitution for Climate Justice without Vengeance."

Nomination of Aubrey Meyer and 'Contraction & Convergence' for Zayed Prize
by Dr. Mayer Hillman, Senior Fellow Emeritus, Policy Studies Institute, London

http://www.gci.org.uk/Documents/Zayed_Prize_2011_Nomination_of_Meyer_by_Hillman.pdf