‘Green Credit’ for Green Purposes

Changing the Cash : Credit Ratio of the Money Supply to Ameliorate Climate Change

A Response to the Inquiry of the Treasury Select Committee into Climate Change and the Stern Review

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Executive Summary

1. This submission undertakes a systemic analysis of money and public funding whilst proposing 'green credit' as a new economic instrument. It identifies 'state money', 'Government money' or 'cash' as not-interest bearing (NIB) and 'credit' as interest-bearing 'bank money'. We illustrate the parallels between the exponential growth of CO_2 emissions, the national debt and credit as part of the money supply as a whole. Long-term parallels illustrate how global warming cannot be curbed without curbing the growth of lending at interest. For exponential growth is unlimited and an indicator for unsustainable, unnatural and cancerous growth.

2. Using the public statistics of the Bank of England[1], the submission identifies the cash : credit ratio as a measure for changing the direction of current trends. An increase in the Government share of the money supply could fund environmental activities, lower personal, corporate and governmental indebtedness and allow Westminster to leverage budgetary control over the City.

3. As formulated in Early Day Motion 408[2], the submitters recommend adding public or 'green credit' to available policy means so that a maximum of activities to ameliorate global warming can be funded by Government. So far, there has always been enough money for war, but never enough for the environment. Green credit would increase the Government's budget and fuel the level of environmental activities at the speed required by climate change. As an ethical and green measure, the cash : credit ratio would indicate the balance between spending money for the common good and making money out of money through interest.

4. In relation to the Stern review, the submitters invite the Committee to consider evaluating *3D Metrics'* prototype software for complex systems. Having proved rather successful for financial forecasting over daily and weekly intervals, this software has the capability of multi-scale modelling while handling multi-dimensional parameters and multi-variant data.

5. Since this '3dM' software is independent of scale, it can handle short and long time intervals. As it is also independent of application, it can process data from financial, monetary and economic sources as well as climate change. Thus it is likely to prove more effective for future modelling and monitoring than the PAGE system used for the Stern report.

6. In conclusion, this submission finds environmental taxation as unsuitable as borrowing to raise revenue. With a view to social impact and changing behaviour, our recommendation is the use of money not as a 'green stick' but as a 'green carrot': by using green credit, energy efficient buildings, a

carbon neutral transport system and the use of renewable energies can become commonplace at the speed that is desirable and necessary.

We are learning by bitter experience that the organism which destroys its environment destroys itself.

Gregory Bateson (1904 – 1980), British anthropologist, social scientist, linguist and cyberneticist.

Introduction to the Submitter

7. Sabine K McNeill has organised the *Forum for Stable Currencies* in the House of Lords since 1998. Drawing from international and national expertise, well over 50 Forum meetings combined monetary and structural analysis with financial and economic evidence at constituency level: see www.monies.cc

8. As a mathematician and systems analyst, she was an employee of CERN, the *European Centre for Nuclear Research* in Geneva. Her company *3D Metrics* was recently sponsored by UKTI to participate in the UK @ CERN exhibition. The result is a potential collaboration to provide add-on software to CERN's de facto standard for data analysis and visualization. See www.3dmetrics.co.uk for Measuring New Qualities in Finance, Science and Economics.

9. Sponsors of the *Forum for Stable Currencies* and participants in meetings in both Houses are politicians, researchers and publishers who, in a voluntary capacity and without any funding, have brought together an expert body of knowledge since the 1950's. The evidence substantiates the environmentally detrimental long term effects of short term policies and even shorter term statistics. Speakers at the Forum have included:

   Austin Mitchell MP, Chairman: http://www.austinmitchell.co.uk/

   Lord Ahmed, Vice-Chairman: http://en.wikipedia.org/wiki/Nazir_Ahmed,_Baron_Ahmed

   Lord Sudeley, Convenor: http://www.monies.cc/forum/backgrnd/lsudeley.htm

   James Gibb Stuart, author and publisher: *The Money Bomb, Hidden Menace to World Peace, Fantopia, Scotland and its Money, Economics of the Green Renaissance:* www.jamesgibbstuart.org

   Margrit Kennedy, author, *Interest- and Inflation-Free Money* – Creating an exchange medium that works for everybody and protects the earth: www.margritkennedy.de

   Bernard Lietaer, former Belgian central banker and author, *The Future of Money*: http://en.wikipedia.org/wiki/Bernard_Lietaer

   Michael Rowbotham, author, *Grip of Death* and *Good bye, America* http://books.google.co.uk/books?q=michael+rowbotham+grip+death

Stephen Zarlenga, founder, *American Monetary Institute,* author, *The Lost Science of Money*: http://www.monetary.org/

Richard Murphy, author, *Public Credit for Public Purposes* – A Finance Initiative for Publicly Created Money – Briefing for EDM 854, 2004 – see http://www.monies.cc/publications/EDM%20854%20Briefing%20Document%20-%20Richard%20Murphy.pdf

Green Credit for Green Purposes

10. Climate change requires system analysis applied to many parameters and measurements globally, just as the global economy requires a system analytical approach to statistics and metrics. However, economics is a 'soft science' that has been accused of autism by its own student body. See www.paecon.net, the site of the *post-autistic economics network* founded in 2000, which says economics is now so sick that even members of its inter-sanctum publicly admit it.

11. For the purpose of clarification, the following definitions are cited from the Oxford Dictionary:
    - *monetary*: relating to money or currency
    - *financial*: 1 relating to finance, 2 possessing money
    - *economic*: 1 relating to economics or the economy, 2 justified in terms of profitability.
    - *credit:* 1 the facility of being able to obtain goods or services before payment, based on the trust that payment will be made in the future. 2 an entry in an account recording a sum received – from *credere* 'believe, trust'.

    This submission challenges the language and metrics used by lending institutions to turn 'public credit' into 'Public Spending Borrowing Requirements'.

12. With respect to the economics of climate change addressed by the Stern report, 'economic instruments' comprise:
    - the *policy means* of HM Treasury,
    - the *interest rates* set by the Monetary Policy Committee,
    - the *financial stability functions* of the Bank of England,
    - the *interest rates* and *bank charges* of monetary and financial institutions
    - and the *statistics* and *metrics* used as the basis for setting policy and making decisions.

Currencies & Finance = Cash + Credit

13. EDM 408[2] suggests both a new way of raising money for Government and how to spend it for the benefit of the environment through transport, energy supplies and buildings. It points out that current means of debt-

financing, borrowing and taxation are not sufficient for the vast resources required to cope with climate change.

14. Government borrowing has existed since 1694 when the Bank of England was created and subsequently legalised in The Tonnage Act of 1696, to "lend money to the Government". Concern over this dubious practice was such that Section 9 of the Bank Charter Act of 1844 required that any profit accruing to the Bank of England (then a private bank) from the creation of currency was to be paid to Government.

15. It is for this reason that EDM 408[2] – as a matter of urgency and in face of apathy due to lack of analysis and understanding from Parliament – demands some restoration of the public's right of seigneurage[12], also spelled seignorage[14] or seigniorage[15], from the creation of both cash and non-cash money, as was their right and privilege bestowed by the Crown many hundreds of years ago.

16. To assess the economics of climate change, success measures of the human economy need to be combined with measuring planet earth as a natural system while taking ethical considerations into account.

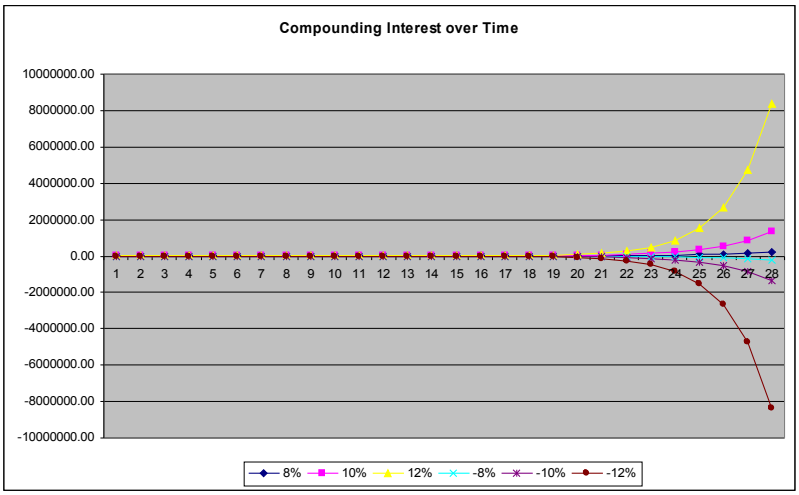
17. In this context, 'economic growth' needs to be questioned – when measured by GDP and inflation. For they are short-term indicators that do not take into account the long-term effects of exponential growth.

18. **Measures and Parameters for the Economics of Climate Change**	
Stern Report	**Submitter's Recommendation**
a. In terms of international frameworks • Emissions trading • Technology cooperation • Action to reduce deforestation • Adaptation through overseas development assistance • Rich and poor countries	a. *Contraction & Convergence*[4]: • Precaution and equity in the UN Climate Treaty • Negotiating rates of contraction • Pre-distributed entitlements resulting from negotiable rates of convergence • Equal emission shares per person globally
b. In terms of climate change • Growth and development • Stabilisation of emissions • Mitigation and Adaptation	b. 'Green credit' for • renewable energies • energy efficient buildings • carbon neutral transport systems

c. In terms of economics • global price for carbon • tax, trading or regulation • aspirations for growth • costs and risks • integrated assessment models • world consumption	c. In terms of short- and long-term developments ➢ the nature of exponential growth • caused by compounding interest on interest • resulting in exponential profit and exponential debt ➢ the parallels of exponential growth • between CO_2 emissions and economic growth • between the money supply and credit growth
d. In terms of policy • support innovation and deployment of low-carbon technologies • remove barriers to energy efficiency • inform, educate and persuade individuals	d. In terms of cash and credit in the money supply • increase the minute share of interest-free cash through green credit for funding green projects • curb the exponential growth of credit • use the cash : credit ratio[5] as a monetary measure.
e. In terms of metrics • consumption per head • GDP per head • CO_2 emissions per head.	e. In terms of metrics ➢ per head • $ income • $ debt • CO2 : debt ratio ➢ in national money supplies • the cash : credit ratio • the interest of M4 as a minimum for green credit limits.

19. The mathematical rather than economic approach to the analysis of complex systems is illustrated by a series of charts and graphs. They begin with the exponential growth of compounding interest. This growth is the driver in a money supply that depends fundamentally on interest-bearing debt and credit.

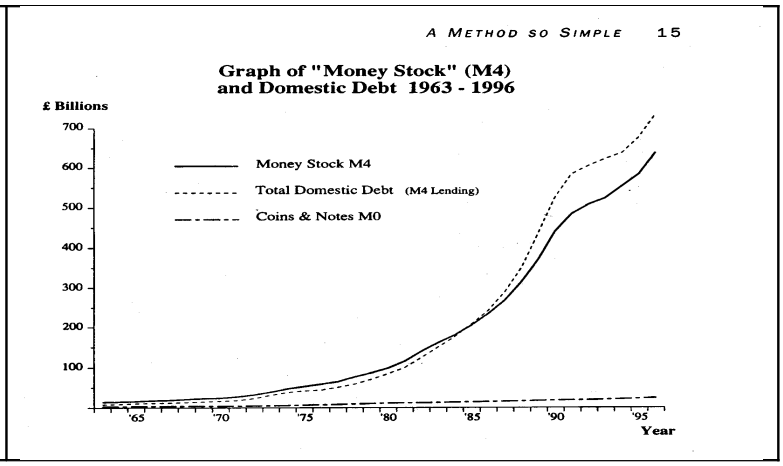
Compounding Interest over Time – short and long-term



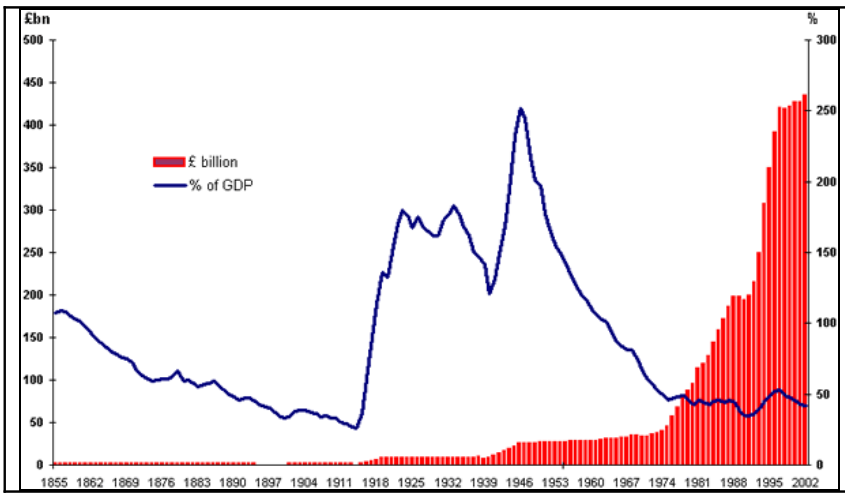
No matter what the interest rate is – here 8, 10 and 12% - growth is exponential - whether for profit or for debt. But exponentiality kicks in only after over 20 time intervals – whether months, years or decades.

Money Stock (M4) and Domestic Debt 1963 – 1996[6]

This graph is taken from page 15 of Michael Rowbotham's book "The Grip of Death"[5] and illustrates the growth of the money supply through the national debt between 1963 and 1996.



The Exponential Rise of the National Debt: 1855 – 2002[7]



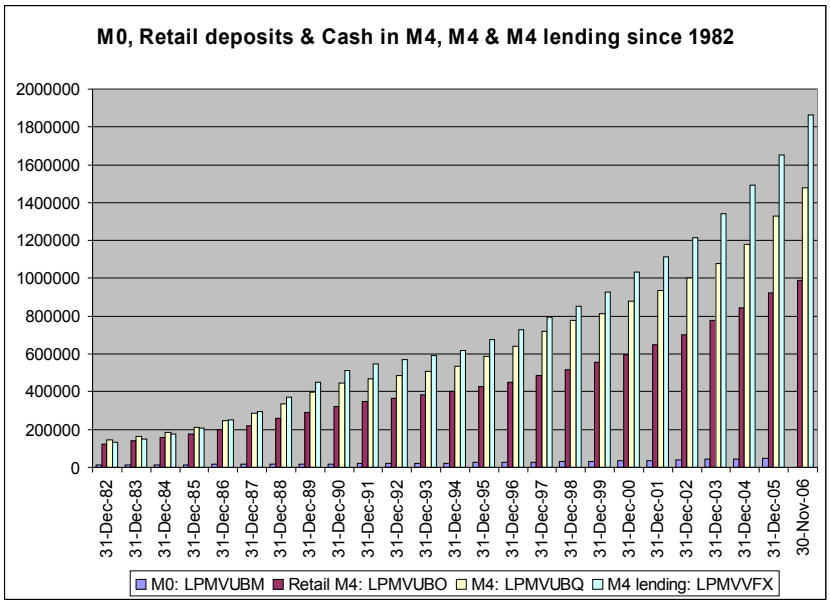
This graph has been downloaded from the web site of the UK Debt Management Office to show the exponential rise of the national debt since 1855.

The Money Supply Rising Exponentially since 1982[8]

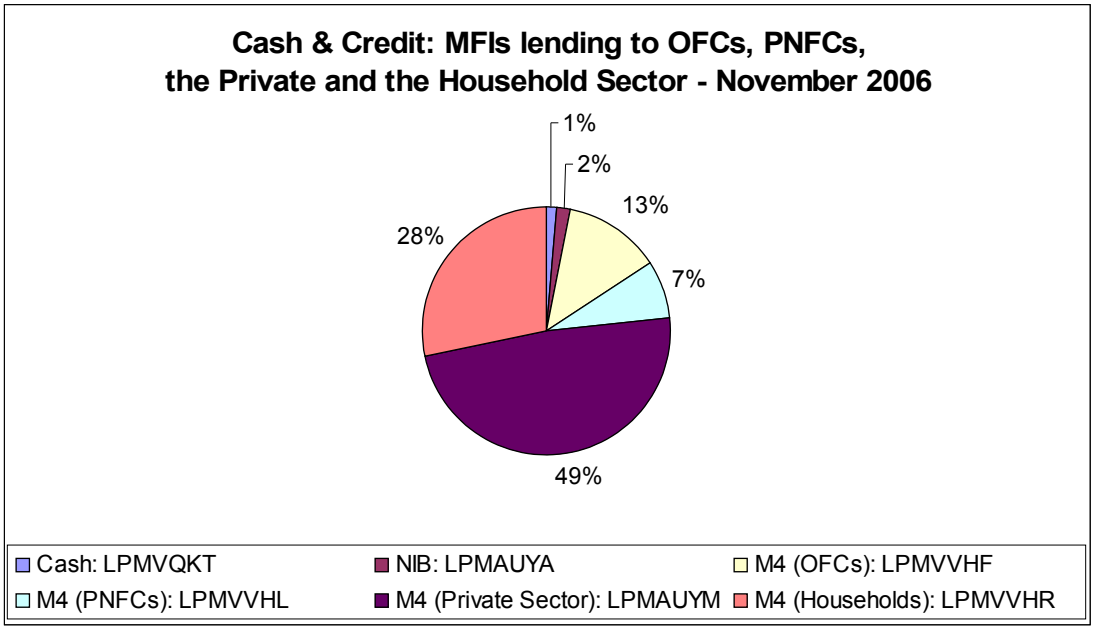
The money stock or supply comprises M0 (cash or 'narrow' money) and M4 (credit or 'broad' money).

M4 is provided by Banks and Building Societies or MFIs (Monetary & Financial Institutions).

This graph shows data from the Bank of England with exponential growth for M4 components while M0 remains tiny.

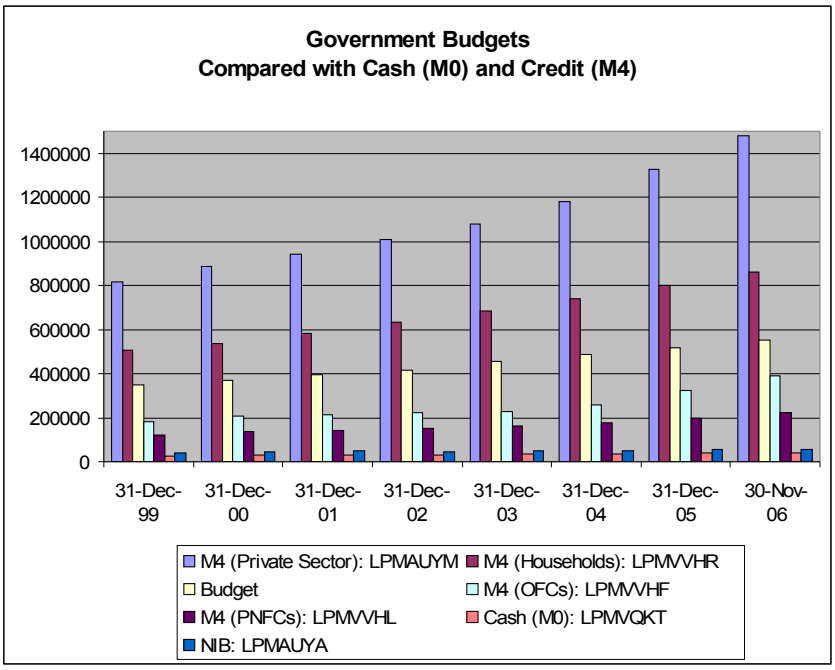


Supplying Money into the Economy as Cash & Credit: 2006[9]



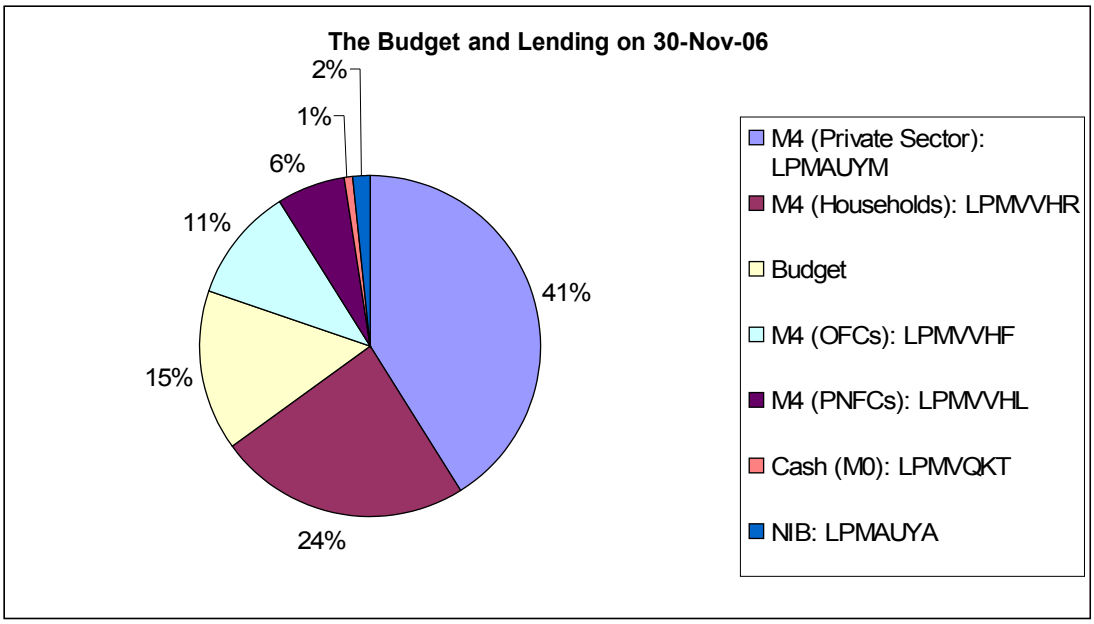
To illustrate the power of lending money at interest,
this graph shows interest-free cash (M0)
and non-interest bearing (NIB) deposits on the top right.
Next is credit (M4) from Monetary and Financial Institutions (MFIs)
to Other Financial Corporations (OFCs),
Private Non-Financial Corporations (PNFCs),
the Private Sector and private households.

Is the Government Running UK plc?[10]



Taking Budget data from the Treasury's website, this graph compares the financial power of the Government with the influence of MFI's supplying the economy with money through credit. Every budget includes debt interest payments.

Money: from Medium of Exchange to Means of Control[11]



Green Credit as a 'Green Carrot'

20. Greening our environment means funding environmentally beneficial activities such as
    - the energy efficiency of buildings
    - the transformation of energy supplies
    - and the energy quality of transport systems.

21. Instead of using taxation as a 'green stick', it is proposed to use 'green credit' as a 'green carrot'. Green credit would not only combat climate

change but other social problems relating to unemployment, over-indebtedness, bankruptcies and bank scandals besides the perpetual lack of funding for public services.

22. When considering money as a means to encourage change, it has to be exercised at source before consumer level. Originally designed as a medium of exchange, money has become a ‘carrot of consumption’ and a ‘stick of bank charges’ besides the ‘whip of governmental taxation’.

23. Due to the dominance of credit, producers create environmentally questionable products and need ever more credit for interest payments.

24. In contrast, green taxation would be a ‘non-clean’ instrument that blurs the costs between energy producers and consumers while taxpayers are not given cost-efficient choices between renewable energies. At the same time, corporations use tax heavens at the cost of Government. See www.taxjustice.net

25. For Government and politics to regain some of the credibility lost, it is paramount that renewable sources of energy are funded before consumers are taxed, e.g. financing research into hydrogen fuels, nuclear fusion and the neutralisation of radio-active waste.

26. In terms of social impact and public opinion, it is more advantageous for Government to use green credit to fund not only the creation of environmentally meaningful jobs but also the products and services of SMEs. This would lead to energy efficient behaviour among producers and consumers that are socially acceptable on ethical as well as financial grounds.

From Economic to Systemic Analysis

27. The analysis of the Stern review results in a clear message: not taking strong action now would be too costly.

28. The analysis of the submitter results in new system parameters that could be fed into ‘3dM modelling software’. This new visualization of multi-dimensional, multi-scale and multi-variant data would allow for understanding the correlations between short-term and long-term processes better. It would provide a tool for not only modelling the future but also monitoring progress - in economics as well as climate change.

From Economic to Systemic Modelling

29. The model used for the Stern report is based on probabilities. The proposed ‘3dM software’, however, can be used to predict time series of any application. This means that all the parameters that contribute to the PAGE 2002 model - and more - can be fed into the ‘3dM software’ that not only visualizes many dimensions but also forecasts them. As a result, new correlations and ratios can be derived for measuring.

30. ‘3dM forecasting’ has so far only been tested for financial data, with remarkable results for Dow 30 and 16 UK shares. Below is a juxtaposition

of Stern parameters and the approach offered by 3D Metrics. Its general methods can be tailored such that correlations can be shown between different economic parameters and between climate data as well as between the two systems together.

STERN REPORT	SUBMITTER'S PROPOSAL
Page 2002 Software	**Innovative '3dM Modelling' Software**
DATA	
Economics	**Economics**
Market impacts	**or climate change**
Risk of catastrophe	**or both**
Global per capita GDP	Multi-scale
Percentage loss in consumption	Multi-variant
Annual cost of emission reductions	Multi-dimensions
DEVELOPMENTS over TIME	
Risk	Forecasts of any time series
Probabilities	over any time interval
Uncertainty	for short-term and long-term projections
CLIMATE CHANGE	
2 – 3^0 warming	Frameworks of Interpretation for Tailoring
Baseline climate	Menu Options of Parametrisation for Customizing
High climate	Choices of Visualization for Personalizing

Scenarios for Measures of Climate Change

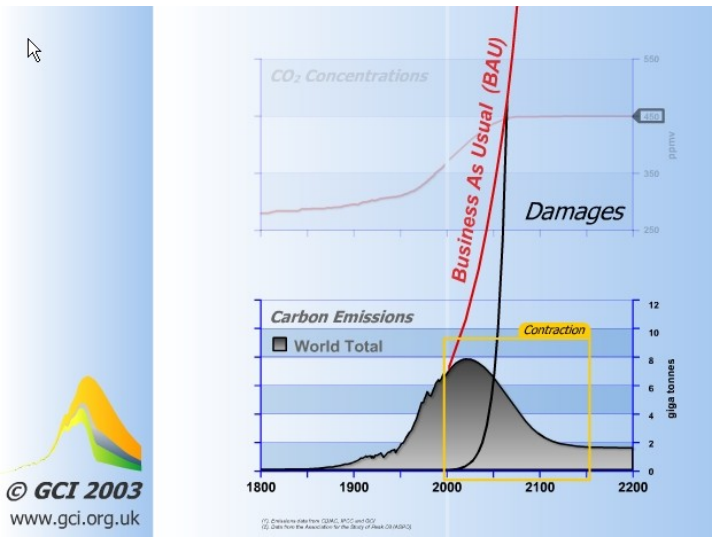
The Global Commons Institute – London

31. In the graph below, the logo of the *Global Commons Institute* shows the exponential rise of emissions in giga tonnes of carbon since 1800. For the USA, China, India, the Rest of the World and the Rest of OECD the logo shows the past growth – and the limits that need to be achieved by 2200, if we want our planet to provide life for future generations.

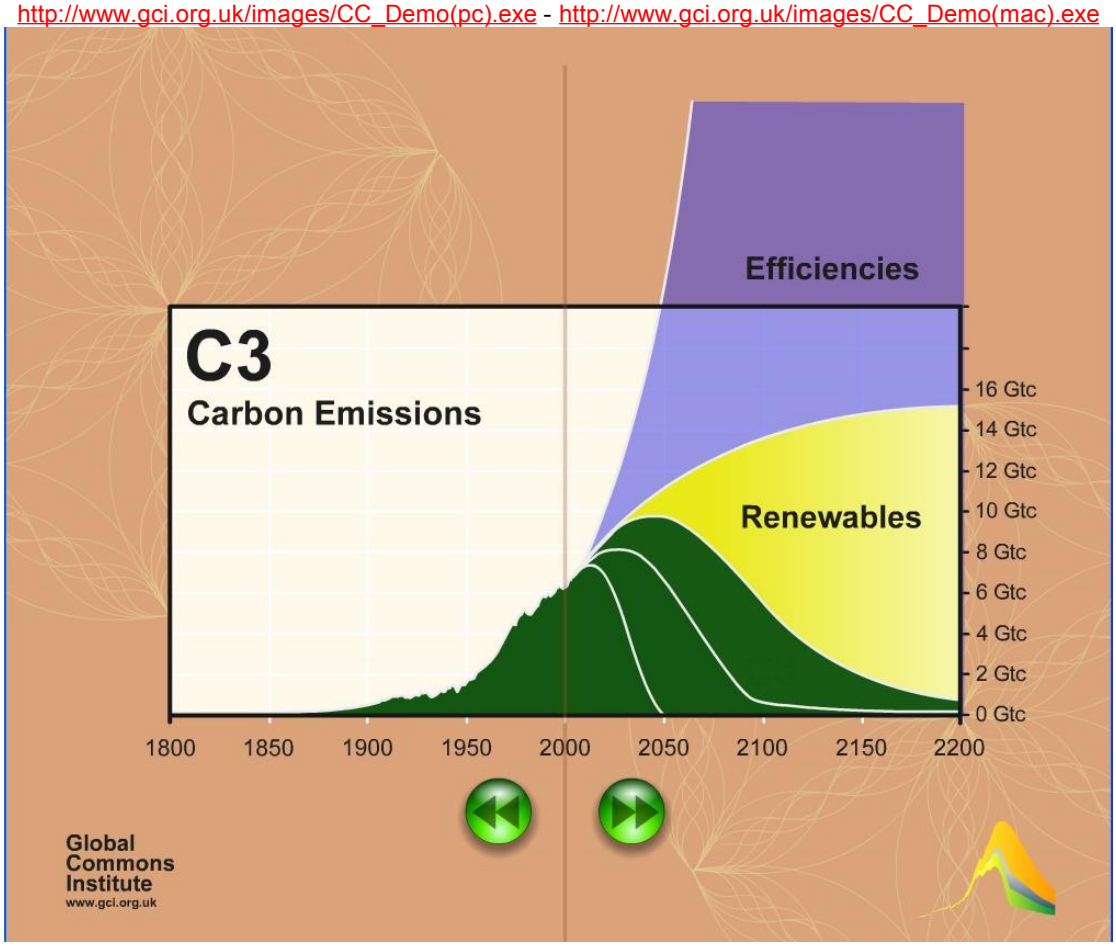
Contraction & Convergence – A Global Framework

32. Within the internationally widely supported framework called *Contraction & Convergence,* the North and West of our globe have to contract their emissions so that, together with the South and the East, we can converge towards sustainable levels.

33. It should be obvious to every caring and thinking human being that Business As Usual can NOT go on perpetuating the exponential growth of our past behaviour, but that a limited earth demands thinking ‘limits’.



http://www.gci.org.uk/images/CC_Demo(pc).exe - http://www.gci.org.uk/images/CC_Demo(mac).exe



http://www.gci.org.uk/images/Venice_Presentation.swf
[Touch buttons to advance within scenes and logo to advance between scenes].

34. Curbing the exponential growth of carbon emissions means curbing the exponential growth of credit in the West that has expanded its economic thinking by calling it ‘globalization’.

35. Curbing the exponential growth of credit means
    - increasing the money supply through ‘cash’ rather than credit
    - letting the Government control this growth through the demand for ‘green credit’
    - using the cash : credit ratio as an ethical and green rather than economic money measure.

36. Using money not as a policy-making measure but to marshal human and natural resources should be our primary commitment – not only all over the country but also in Westminster and the City.

Recommendations for Action

Green Credit for Green Purposes

37. Sir Nicholas said at the launch of his book at the RSA on Jan. 15th that he recommends to double public funding. But he did not specify over which time period or the source of funding.

38. In addition to taxation and borrowing, HM Treasury is recommended to use the not-interest bearing notes and coin measure to raise revenue and fund effective actions to protect our environment.

39. To maximise social impact, effective actions can consist of Government funded job creation besides grants to SMEs and voluntary and non-profit organisations that have 100% probability of being awarded.

40. The urgency of stopping climate change asks for innovation and growth at all levels, including money stock, policy means and money measures.

Publishing the Cash : Credit Ratio of the Money Supply

41. In the spirit of parliamentary scrutiny and freedom of information, the Bank of England is recommended to publish
    - the total money supply
        - the cash : credit ratio in the money supply
        - the Not Interest Bearing (Nib) share in the money supply
    - the PSBR share in the credit supply
    - averaged interest of M4 and M4 lending as a guideline for Not Interest Bearing green credit limits
    - not only in monthly and quarterly but also yearly and 5-yearly intervals.

Monitoring Budgetary Ratios between Government and City

42. The Treasury Select Committee is recommended to monitor economic constraints for Government by monitoring the purpose of supplying, spending and making money:
    - The Government's budget (HM Treasury)
        - for spending cash or 'narrow money' into the economy
        - for Public Spending Borrowing Requirements (PSBR)
    - M4 from Monetary and Financial Institutions (MFIs)
        - for supplying the economy with credit or 'broad' money
    - M4 lending
        - from Private Non-Financial Corporations (PNFIs)
        - and Other Financial Corporations (OFCs)
        - for making money out of money through interest-bearing credit.

Evaluating Correlations between Economics & Climate Change

43. The Treasury Select Committee is invited to investigate the advantages of new software methods that can model and monitor the economics of climate change by quantifying its parameters and ratios in new ways.

44. Such 'joined up statistics' regarding economics and climate change are likely to lead to new measures and ratios for clarity of understanding.

References

1) Bank of England Statistics

45. The Bank of England [http://www.bankofengland.co.uk/] publishes a Statistical Interactive Database with Tables relating to 'Money and lending' http://213.225.136.206/mfsd/iadb/index.asp?Travel=NIxSTxTAx&levels=1&F1Xtop.x=76&F1Xtop.y=8&FullPage=&FullPageHistory=&Nodes=&SectionRequired=A&HideNums=1&ExtraInfo=false#BM

46. Tables are published in weekly, monthly and quarterly intervals, generally starting in 1982, distinguishing between 'narrow' money or M0 and 'broad' money or M4. Every data series is identified by a 7-letter code such as LPMVQKT.

47. M0 ceased to be published in April 2006.

2) Early Day Motion 408

48. Since 2002, the *Forum for Stable Currencies* has created a history[3] of seven Early Day Motions to recommend investigations into the economics of 'public credit' and Government actions for using it.

49. Tabled on December 5th 2006 by Austin Mitchell MP (Grimsby), the latest Early Day Motion is entitled "*Public Credit for Public Purposes*". The full text of the EDM is as follows:

"That this House

- knowing that enormous sums of money are necessary to improve public services*;*
- build a better infrastructure and provide for the well-being of the people*;*
- and recognising that further huge additional expenditure will now be necessary to combat global warming, reduce carbon emissions and make public buildings, housing and transport carbon neutral
- points out that there is no prospect of raising such huge but necessary sums through normal channels of taxation and borrowing*;*
- therefore suggests that the time has come to supplement these by using the power of public credit to increase the amount of publicly-funded money,
- particularly since this has fallen from 20 per cent. of the money supply in 1964 to 3 per cent. today because the banks have largely taken the issue of credit and taken the seigneurage[12] arising from credit creation for themselves
- and calls on the Government to use the power of public credit for public purposes
- particularly for the huge expenditure necessary to finance the development of carbon neutrality in a good society.

Won't Public Credit mean Inflation?

50. There is a widespread fear of governments "printing money" because it is believed to cause inflation. However, that is exactly what we have at the moment: the supply of 'bank money' keeps growing, while the supply of interest-free 'Government money' dwindles.

51. Fortunately, the creation of both cash and credit money is not inflationary, provided it is not-interest bearing. The reason is simple: loans, whether to Government, corporations or individuals, are interest-bearing. But whereas the lender has found means of creating the capital, no separate provision is made for the creation of the interest which has to be found out of an expanding money supply.

The Inflation Factor

52. The mechanism of borrowing money to pay interest is inherent in any debt-based money supply and can confidently be described as the inflation factor. When measured in terms of price changes, it changes dramatically depending on the length of time taken into account. A cash : credit ratio, however, would remain a constant guideline for sustainable growth and could also relate to price measures over long time periods.

3) History of Early Day Motions

26/06/2002	Using the Public Credit
10/03/2003	Publicly created Money and Monetary Reform
17/12/2003	Public Credit for Public Purposes
07/12/2004	Use of Public Credit for Public Works
22/02/2005	Interest Free Money
22/06/2005	Publicly-Created Money

4) Contraction & Convergence or C & C

53. "C & C" is the rights-based, global climate policy framework that has been proposed to the United Nations since 1990 by the Global Commons Institute (GCI), London. It proposes a contraction budget with the goal of equal shares per person globally. http://www.gci.org.uk/links/detail.pdf

5) The Cash : Credit Ratio

54. Including the money measure as a basis for setting policy and taking budgetary measures requires considerable changes to current procedures. Above all, people will want to know limits. But it is the unlimited nature of the exponential growth of credit that needs to be counteracted. The sky with its atmospheric deterioration is, in this case, a metaphoric and actual limit.

6) Michael Rowbotham, The Grip of Death

55. A Study of Modern Money, Debt Slavery and Destructive Economics, Jon Carpenter 1998 - http://www.amazon.co.uk/Grip-Death-Slavery-Destructive-Economics/dp/1897766408

7) The Exponential Rise of National Debt since 1855

56. From the website of the Debt Management Office: http://www.dmo.gov.uk/reportView.aspx?rptCode=D4A&rptName=7376646&reportpage=national_debt

8) The Money Supply Rising Exponentially since 1982

57. Measuring 'economic growth' by comparing the supply of Government money with the supply of bank money would be novel. This transparency has become possible thanks to computers and necessary due to climate change.

9) Supplying Money into the Economy as Cash & Credit: 2006

58. This graph shows how a mere 3% of the money in circulation consist of interest-free cash, while all other 'money' which is supposed to facilitate trade, is credit. Since 'interest' is not created separately, more and more credit is required to cope with interest payments.

10) Is the Government Running UK plc?

59. By comparing M0 and M4 components with the Government's Budget over a number of years, it becomes apparent how financial institutions increase their influence in terms of financial power. As stated on http://www.bankofengland.co.uk/about/parliament/index.htm, the Bank of England is wholly-owned by Government and thus accountable to Parliament. It further states that the principal means of accountability is via the House of Commons Treasury Select Committee.

11) Money: from Medium of Exchange to Means of Control

60. What money is, what money values, how it is used and how its usage is measured depends fundamentally on the context. Individually, it has become a means of survival for food and shelter. And it is shocking that all 'rich' countries have to cope with homelessness. Nationally, money determines priorities for funding as a policy means. But now we need to think 'money' globally – not only across financial institutions thanks to cash machines but also across governments due to climate change.

12) Seigneurage -

61. The difference between the value of money and the cost to produce it. Seigniorage may be counted as revenue for a government when the money that is created is worth more than it costs to produce it. This revenue is often used by governments to finance a portion of their expenditures without having to collect taxes. If, for example, it costs the U.S. Government $0.05 to produce a $1 bill, the seigniorage is $0.95, or the difference between the two amounts.
    From http://financial-dictionary.thefreedictionary.com/Seigneurage

13) Seignorage

62. Seignorage is "The amount of real purchasing power that [a] government can extract from the public by printing money." -- Cukierman 1992

    Explanation: When a government prints money, it is in essence borrowing interest-free since it receives goods in exchange for the money, and must accept the money in return only at some future time. It gains further if issuing new money reduces (through inflation) the value of old money by reducing the liability that the old money represents. These gains to a money-issuing government are called "seignorage" revenues.

    The original meaning of seignorage was the fee taken by a money issuer (a government) for the cost of minting the money. Money itself, at that time, was intrinsically valuable because it was made of metal. From http://economics.about.com/od/economicsglossary/g/seignorage.htm

14) Seigniorage

63. Seigniorage, also spelled seignorage[13] or seigneurage[12], is the net revenue derived from the issuing of currency. It arises from the difference between the face value of a coin or bank note and the cost of producing, distributing and eventually retiring it from circulation. Seigniorage is an important source of revenue for some national banks.
    From http://en.wikipedia.org/wiki/Seigniorage

Anyone who believes exponential growth can go on forever in a finite world is either a madman or an economist.

Kenneth Boulding (1910-1993), UK born economist, educator, systems scientist and interdisciplinary philosopher