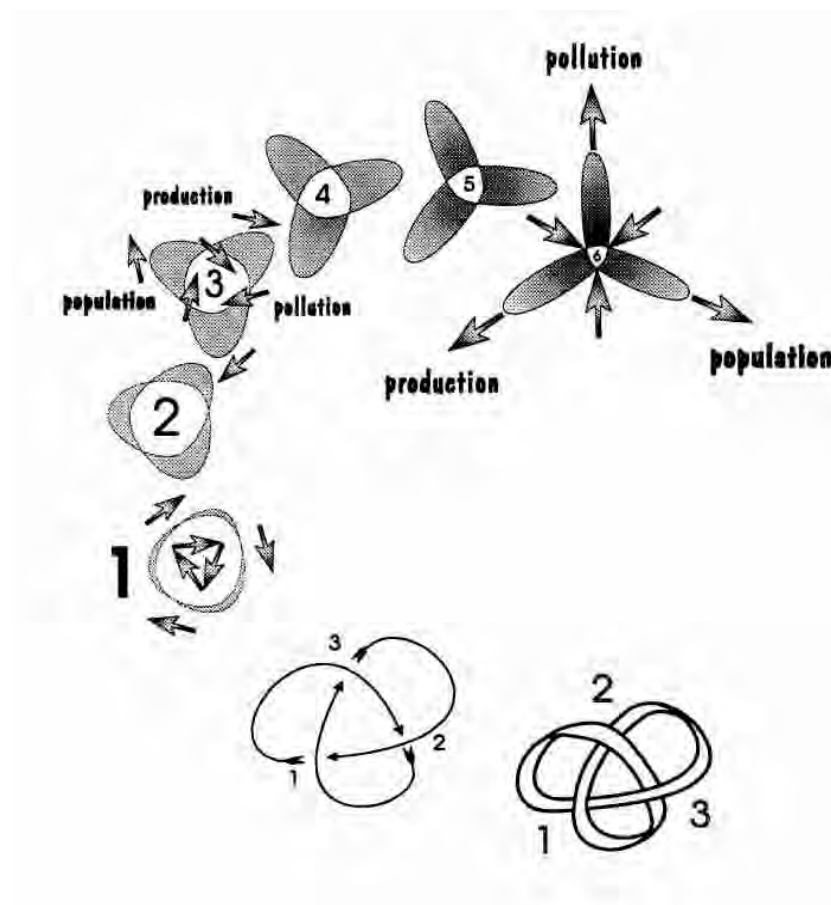


Global Climate Change and the Noose of Equity and Survival



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Equity for Security and Ecological Survival

by Aubrey Mever and Anandi Sharan of the Global Commons Institute

Equity and survival are now inextricably linked. This is the basic contention of the Global Commons Institute (GCI). It has been throughout the debate about human-induced global climate change.

Introduction

In the light of the global survival imperative which these climate changes now impose, equity is simply the trans-temporal sharing of risks, responsibilities, rights, rewards, responses and restraints in a balanced way - or fairly. This equity-survival premise is axiomatic and empirical. It is both moral and expedient. We can choose which way to view it, but rejecting this linkage, as some (like the UK government) still do, is rooted in a failure to understand the universal nature of this crisis. Such an attitude can only precipitate deepening conflict with each and with nature.

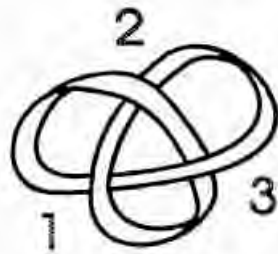
Understanding this requires understanding the complex system of feedbacks in the bio-sphere.

Such an understanding may deliver the new synthesis upon which to model and protect their future prospects of us all. However, as we shall argue this will need to embrace dealing more with the causes of the problems we face, rather than ambulance-chasing their effects. Because of growth in all sectors of the global community, these sectors are now impacting both upon each other and upon the biosphere. Consequently all are now vulnerable to the adverse consequences of their own and each other's overall continuing growth. Traditionally we have all been directly vulnerable to each other in the context of aggressive behaviour. From this, conventional attack and defend security strategies evolved. However, we are now also indirectly vulnerable to each other through our respective (and even ostensibly non-violent) impacts on the bio-sphere. Survival is now a collective enterprise and security is now fundamentally redefined because of this. If historically victims could pay the collateral costs of violence, the new reality is that from now on - with violence or even merely with inappropriate development - we can only make collective victims of ourselves. Conversely only with collective and right action can we hope to survive. This article attempts to point up some of the right actions and to layout some of the preconditions for that right action becoming collective.

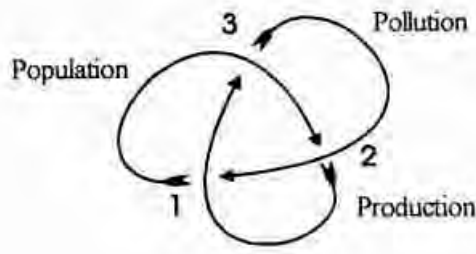
A Dynamic Trans-Temporal Model Pointing to a New Strategic Imperative

Graphic One shows a model of the bio-sphere as a 'closed-system'. All feedbacks in the system are self-internalizing and result in an overall condition of benign evolutionary self-regulation. Our bio-sphere loop is looped upon itself with three cross-over points. These give rise to the appearance of three sub-loops or 'petals' all sharing a common space at the centre of the 'knot'. The common space at the centre especially represents the geo-sphere/bio-sphere upon which all human activities depend. This is only initially unaffected by human activities. The petals we shall assign to represent population, production and pollution and the growth of these.

Graphic Two is the same knotted configuration but shows internal flow throughout the system.

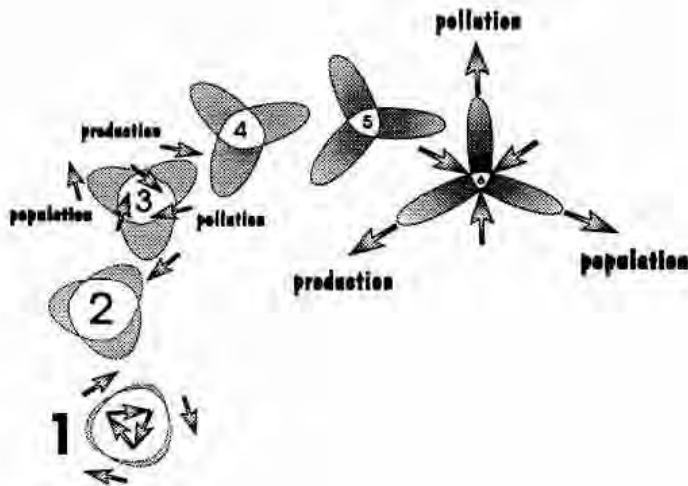


Graphic One



Graphic Two

Graphic Three is a trans-temporal progression based on this loop. The progression takes the loop through stages of transformation and (in human terms) so-called 'growth'. It shows the growth of population, production and pollution over time and should suggest the interaction of these. It shows how these are now impacting on each other whilst also closing on the biosphere like a tightening noose. It is this growing prevalence and proximity of human impacts in diminishing ecological space which redefines conventional security and engages the equity-survival linkage as a strategic imperative in the politics of the global commons.



It is imperative we recognise that when resources (and global commons resources such as a stable global climate system) diminish, we have only limited choices of response and access. We can either auction them, or fight over them, pursuing variations of a conventional property-based approach. Alternatively, and since the critical resources are now obviously systemic and part of the global commons, we can ration them or their use. This could be done at least until the crisis is substantially reversed. In our view, auctioning will not work. Allocating fundamental rights (such as the right to survive, and the right to providence) by income is obviously grossly inequitable. But it also compounds positive feedback, and this is counter-productive at a time when providing negative feedback is what is required. Fighting has never diminished environmental impact. In the context of global warming and the management of climate change, fighting is an unrealistic proposition as any 'victory' would be Pyrrhic. Rationing is the only potentially viable option. This is now the guts of our global dilemma.

The post-war period saw the dilemma of 'mutually-assured-destruction' (MAD). This evolved on an East/West axis. It was a situation primarily characterised by the direct and mutual vulnerability to each other's use of weapons of mass destruction. However, whilst there were various strategic initiatives to circumvent the progressive 'lose-lose' certainties of nuclear war, nuclear disarmament - or the negative growth of armaments - was only ever the truly rational way out of that dilemma. To some extent that rationale has now conditionally begun to catch on and there is a relevant lesson in this.

However this debate still continues somewhat blind to the new and more urgent security dilemma of global climate change and creeping ecocide. Our new strategic dilemma is total and cultural rather than just global and military/political. It is on a more North/South axis. Because of long-term and intricate feedbacks, it is much more complex and deeply-rooted and deals also with much higher degrees of uncertainty, risk and momentum. To face it, all conventional economic development assumptions must be radically challenged.

Some salient features informing current debate & distinguishing present and future dilemmas from the past.

- (a) at any one time so far, it has only been a minority of people on the planet who have been engaged in the high-intensity development activities which have led in turn - albeit unintentionally - to global scale geo-sphere/bio-sphere changes of an adverse nature;
- (b) the generation of these changes has occurred over large time frames with much actual (if unacknowledged) and further potential for direct and indirect damages to first, second and third parties and the biosphere itself;
- (c) in fact, largely undetectable thresholds of biosphere viability are being crossed, with the potential for irreversible changes and even catastrophic feedbacks being increased;
- (d) this uniquely heralds the bio-sphere and its protection as 'mediator' in the pragmatic merging of the interests of first, second and third parties as the development of policy responses to this crisis unfolds;
- (e) it is this set of factors in which the military connotations of security become progressively less relevant since global development cannot be restrained by military means and neither can environmental protection be delivered by military means;
- (f) it is also this set of factors in which the survival/equity linkage becomes evident, because 'self-interest' is gradually being understood as surrendering to the 'universal interest' rather than clinging to 'vested interest';
- (g) so far however there has been only the so-called 'no-regrets' policy response where, faced with all the above, status-quo development praxis is merely being modified in the direction of 'efficiency', and then only to the extent that the isolated efficiencies so gained are deemed commercially advantageous; all the efficiencies so gained are still being lost to the net growth of environmental and social impact;
- (h) it is this set of factors in which the survival/equity linkage and the need for surrendering to the universal interest is vainly being ignored or rebutted by vested interest;
- (i) this 'postponement' is conveniently assisted by the belief in 'detached' or 'value-free' science or the insufficiently acknowledged scientific dilemma about 'objective proof where humans are part of the evidence, (or humans are both observer and

observed). Proof sought for these global changes, their causation and the validity of the damage prognosis, is deemed dependent on what are regarded as 'objective' externalities. However, because of the global scale of human impacts, these externalities are already being influenced by 'us' and have become therefore, part of the dynamics of subjectivity. Humans and human development culture are now critically part of the overall feedback process. This makes 'value-judgements' and 'bias' unavoidable and also radically challenges the ethos of laissez faire.

The Emergence of Key Feedback Loops Over Time

Let us look at some of the key feed backs in a bio-system where humans now influence both the temperature and the climate of the biosphere. We shall concentrate on the relationships between; -

- (1) carbon dioxide (CO₂) and temperature
- (2)..... and population
- (3) and production
- (4) and industrialization
- (5) and emissions from fossil fuel burning
- (6) and gross domestic product or GDP
- (7) and carbon dioxide and temperature and so on

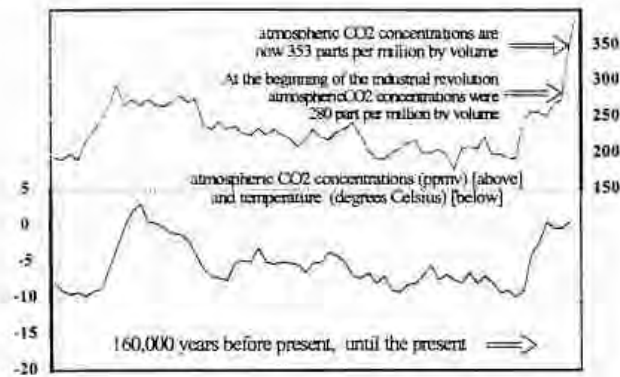


Chart One shows the comparative values for atmospheric concentrations of atmospheric CO₂ and temperature over a period of 160,000 years up to the present. The correspondence between the two is considerable. They tend to go up and down together. The period embraces much of the ice-ages. During these times the total global population of homo sapiens was thought to have been around one million. During this period, varying CO₂ concentrations in the atmosphere could not have been driven upward by humans even though they had mastered the use of fire, as there weren't enough of them and atmospheric CO₂ concentrations were falling. However, the temperature started to warm from around 20,000 BC. CO₂ concentrations started to rise and population started to increase. Positive feedback between these elements would be difficult to assert at this time. But, from around 8,000 BC onwards, agriculture started to replace hunting-gathering, CO₂ concentrations rose further to nearly pre ice-age levels and by 1,000 AD world human population had risen to a figure in excess of two hundred million. CO₂

emissions from forest-land clearance, primarily in the Northern hemisphere, almost certainly helps to explain the increased CO₂ concentrations in the atmosphere and this in turn may well have contributed to the rise in global mean temperature. CO₂ is the principal greenhouse (or heat-trapping gas). If this is so, already at this stage there is a potential example of overall positive feedback, or a self-reinforcing loop of climate-change causation in which the growth of humans and the growth of their activities are implicated.

However, it is with the onset of the industrial revolution, that this kind of positive feedback becomes more strikingly plausible. As the chart shows, at the start of the industrial revolution, atmospheric CO₂ concentrations were at 280 parts per million by volume (ppmv). With the burning of fossil fuels (such as coal) for energy, concentrations have risen by 25 to the current all-time high level of 353 ppmv. Global mean temperature has risen the best part of one degree Celsius during this period and population has risen from a figure of below one billion to the current figure of around 5 billion. In the context of growing numbers globally, population in Europe retained a clear lead density throughout this period.

It is in this industrialising phase that a proper evaluation of geo-sphere, bio-sphere and socio-sphere feedbacks and 'what is causing what', is essential to a proper evaluation of humanity's prospects and policy requirements. This is a complex task, not least because the system is becoming more and more unstable and the empirical problems can only increase as human activities leading to this instability increase.

A Closer Look at Feedbacks 1860 –1990

Chart Two shows growing global population density separated by continent. Europe maintained its long-term lead density right up until the past decade.

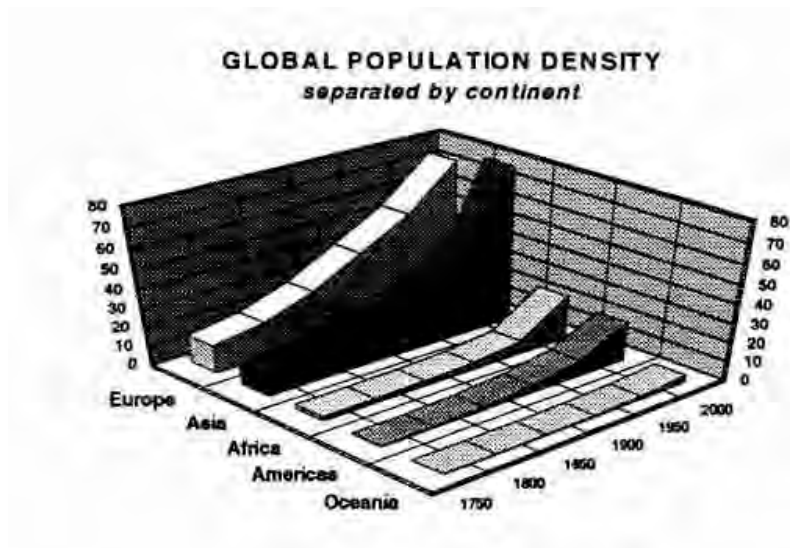


Chart Three shows growing global industrial CO₂ output in millions of metric tonnes of carbon (mmtc) separated by region. The industrialised countries show a clear lead in output of about a century. At least 83 of the industrial CO₂ output came from the industrialised countries during this period.

REGIONAL INDUSTRIAL CO2 OUTPUT 1860 - 1989

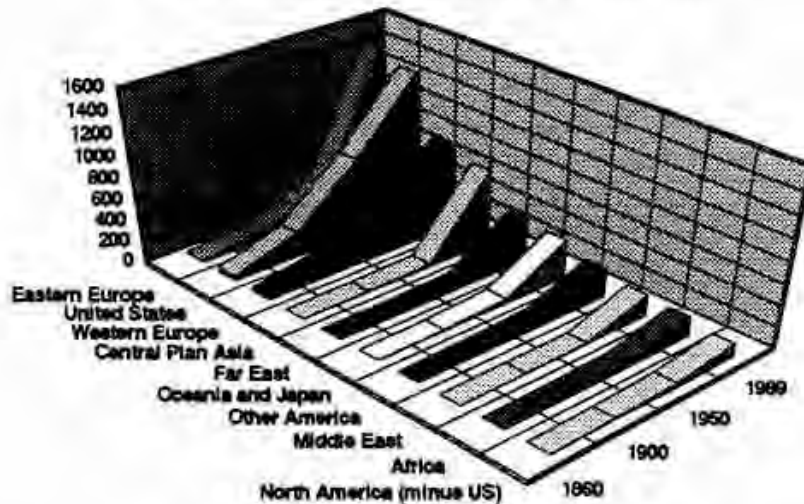


Chart Four shows growing global industrial CO₂ output as a percentage curve from 1860 -1990 and global gross domestic product (GDP) from 1960 -1990; (In both cases 1985 is given the value of 100). In the case of the GDP (or production curve), it has also been exponentially regressed to 1860. This does not mean that GDP was being used as an economic indicator from 1860 forward, but it does reasonably reflect the amount of industrial production and so-called 'wealth-creation' which was in progress throughout

In essence the consolidation of Western economic, political and military dominance throughout the globe occurred during this period. In the light of this, it is predictable to find that 20% of world population living in the industrialised countries receive more than 80 of global income and the 80 of world population living in developing countries receive 20 of global income. In fact this 6:1 income split is more like 16:1 if atmospheric CO₂ stabilisation factors are included in the calculations. This version has two thirds of world population living at zero to negative global climate impact levels, or on 5 or less per capita of the average fossil fuel per capita income level in the OECD countries. On 1990 global fossil fuel GDP:CO₂ values, this provides an energy subsidy to the North worth \$3.4 trillion annually.

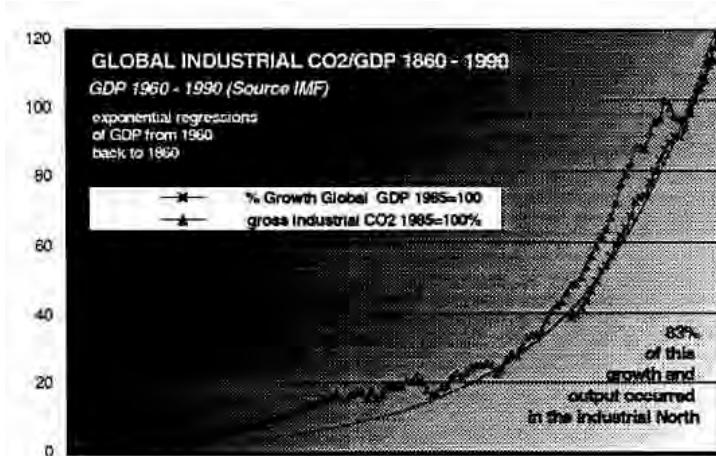
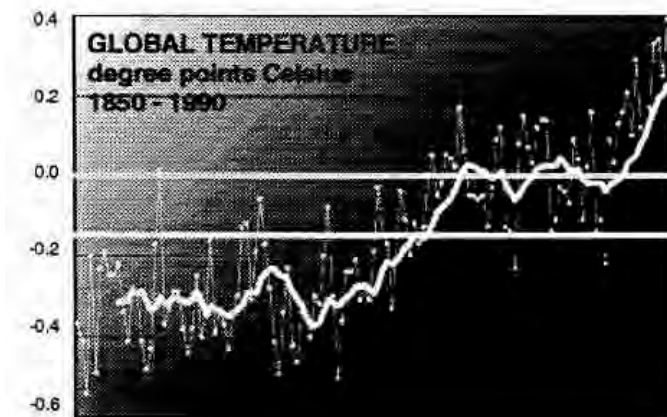


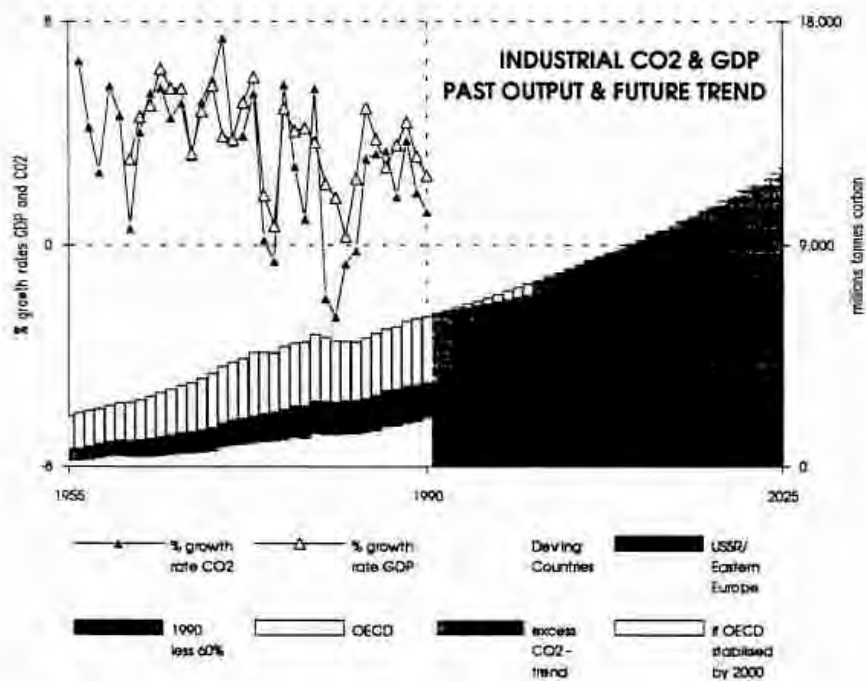
Chart Five shows the global mean temperature variation during this same period covering a range of one degree Celsius with an average mean rise of 0.6 of a degree and with a sequence of three of hottest years on record at the end of the 1980's. It was during this period that the atmospheric concentration of CO₂ rose to the all time high level of 353 ppmv at and a rate more quickly than any on the record (as shown in chart one).



Scientific Advice - UN, Inter-Governmental and OECD Response

In response to this, the Intergovernmental Panel on Climate Change (IPCC) announced in 1990 their finding that if atmospheric concentrations of CO₂ were to be stabilised at 1990 levels, immediate 60 - 80 cuts would be required in the emissions of CO₂ from human sources. Also directly in response to these dangerous trends, the UN negotiations for a Convention on Climate Change began in 1991. However the politics of vested interests intervened and the treaty text signed at the Earth Summit in Rio in 1992 made a legally-binding commitment to "strong and sustainable economic growth" whilst merely outlining a non-legally-binding option for OECD countries to restrain CO₂ emissions to no more than 1990 levels by the year 2000. This latter point reflects nonetheless a general (if caveat-ridden) political acknowledgement of the pre-emptive timing and character of Western industrial development.

Chart Six shows gross global industrial CO2 emissions 1955-1990. It also shows global CO2 and global GDP rates of growth 1955-1990. The variations in each of the two growth rates are very strongly correlated. The chart also shows the projected gross emissions growth until 2025. It also shows within this, the 1990 levels cut by the IPCC 60. It also shows the maximum impact of emissions stabilisation in OECD by 2000 AD (white segments after 1990) should this optional undertaking be fulfilled by OECD. In fact the ratio of the OECD self-restraint segments in this graphic is generous. It was calculated on the basis that all OECD countries stabilised CO2 emissions output as of 1990, rather than trying to guess the rates at which these countries might respond. Even in spite of this, it is obvious that the impact of these cuts on the overall trend of emissions growth is slight. The convention's commitment to economic growth explains this and shows the perceived (and irresponsible) nature of the political priorities at this time.



Population Growth now caused by Economic Growth

Even more intractable than the positive feedback between GDP:CO2:temperature, is the positive feedback between population growth and the above. Population growth and economic growth certainly feed each other. However as this feedback has evolved to an intensity of global significance, the lead element has become economic growth. Demographic transition is utterly contradicted by this fact. Demographic transition theory settles for the view that beyond certain levels of industrial development and per capita wealth attainment, population growth rates stabilise because people desire - or need - children less. But this is only a sub-set phenomenon applying to a minority. Industrial wealth creation has also been a process of global emiseration, and poverty is ultimately the key reason why people have more children. The Rio Earth Summit identified the need to address mass

poverty for both environmental and development reasons. It also identified the need to address 'over-consumption' for the same reasons, particularly in the industrialised countries. This was thus, an acknowledgement of industrial-caused emiseration globally. However, what was not made explicit was the underlying feedback between the growth of global GDP and population growth. The basic 'cure' of further economic growth everywhere was prescribed. This can only draw our difficulties nearer and the noose of equity and survival tighter.

Conclusions

The conclusion to draw from all of this has comparatively little to do with the marginal - and highly conditional - North to South redistribution schemes which were mooted at Rio on the back of this further global economic growth. Far more conclusive at this stage, would be an unconditional commitment to eco-restructuring in the industrial countries. At the heart of this must be the overall restructuring of their system of global economic exploitation. Since industrial countries have caused the lion's share of global damage and developing countries have provided the lion's share of global benefit by having very low consumption rates, promoting both equitable and sustainable consumption ratios globally should be the immediate priority of the industrial countries. If this does not happen and it is not founded in self-restraint, over time developing countries will simply mimic the politics of the West and impose restraint or retaliation. Promoting this parity at sustainable levels will for example have little to do with CO2 emissions trading -or the 'auction' approach to the management of climate change -suggested by the World Bank and others. Currently these seek to award environmental rights by income. Perpetuating the right to pollute and exploit in the direction of those who can 'afford' to, is a pseudo-efficiency argument won at peoples' expense and will only result in further emiseration and overall positive feedback. For these reasons GDP growth itself, the underlying causes of growth, the structural consolidation of the growth momentum in the financial system, even the fundamental desire for growth must be challenged, if we are interested in the survival of our species. This means, both for local and for global reasons, looking for where best to apply negative feedbacks. In the industrial countries this means self restraint and if necessary, developing countries should force the issue on the West by imposing tariffs pro-rata on imports from countries receiving the fossil fuel subsidy.

Once all this is confronted, the full tension of the global equity/survival linkage is revealed. Fighting for survival may be how some will attempt to type-cast our options and prospects. Politically we are still being led by the bl ind. But as a viable global survival strategy, it is not in the model. There are no exits from this system if we want to survive. Reality can't be avoided for ever-equity and survival are inextricably linked.

Aubrey Meyer and Anandi Sharan

are directors at the Global Commons Institute (GCI). GCI is an independent network of people who research the economic and other implications of global ecological changes. For the past three years GCI has presented arguments to the UN Climate Change negotiations. It will now be contributing to the work of the Intergovernmental Panel on Climate Change.

Some recommendations for GCI

"The Global Commons Institute is one of the few places in the world giving the necessary emphasis to a radical questioning of short-sighted economic theory. GCI's approach is rational and compassionate. Their voice must be heard and should be further elaborated in the international debate on global warming and other global ecological challenges."

Dr Ernst von Weizacker,
Director Wuppertal Institute for Energy, Climate and Transport, Germany.

"A quite excellent analysis and superb graphics. I'm impressed yet again by the concise way in which you tackle the subject in hand. I only hope it has the same impact on the UN Climate negotiations!"

Dr Julian Salt. Department of Peace Studies. University of Bradford.

"Your papers are a real treasure. Thank you so much. I enjoyed the graphs enormously."

Prof Tim O'Riordan,
University of East Anglia Environmental Sciences Dept & Associate Director CSERGE.

"I think you have done a brilliant, urgently needed job in marshalling these facts and figures and arguments."

Miles Litvinoff, author "The Greening of Aid", lecturer in environment studies. Open University.

"We intend to disseminate the information in your booklet as widely as possible."
Riza Selahettin, Second Secretary Political, Office for the High Commissioner Malaysia, London.

"GCI hi-jacked the conference.

As a result of their interventions, we ended up discussing things we otherwise would not have had to discuss."

David Pearce, Director C-SERGE about GCI impact on first meeting of IPCC Working Group Three in Montreal." "GCI should be very pleased with the influence they have already had on the economists at IPCC's Working Group 3."

Peter Sturm, OECD Economist, Head of Division "Resource Allocation" and author of OECD's GREEN emissions model.

"Marvellous work."

Dr Hari Sharan, Chairman World Energy Coalition, ex-Director, Bharat Heavy Electrical Ltd, New Delhi.

"I feel your work could make a significant difference to our chances of survival, in view of the environmental crisis."

Kathleen Jannaway, founder of the Movement for Compassionate Living, Surrey UK

"I feel that it is worth a concerted effort to finance the Global Commons Institute. GCI makes an important contribution balancing the key players from business, industry and government"

Jane Knott, European School Brussels, fund-raising for GCI participation at European Forum.

"If we must have NGOs, let's have an honest one. I will endorse any funding proposal you may wish to submit."

Mr. Kamal Nath, Chairman, Montreal Protocol Treaty negotiations.

"We're very pleased your organisation is around doing what it is doing.

It's a very interesting approach you are taking. We are very pleased to support you financially."

Network Foundation for Social Change.

"Your intervention made it worth my while coming here (UN climate negotiations, April 1993).

Thank God someone is calling a spade a spade."

Grace Akumu, Co-Ordinator Climate Network Africa.

Congratulations on your excellent letter to Guardian weekly. I wish you well as you urge global action."

Dr J Rennie Whitehead, Canadian Club of Rome.

"That was a damn good letter!"

Sir Sony Ramphal, Board member IUCN regarding a GCI letter to the Guardian, on the occasion of the reconvening of the World Commission on Environment and Development in London April 1992.

"This man has got it absolutely right"
Prof Wilfried Bach, University of Muenster and member of the Enquette Commission of
the German parliament
(to Mr Bert Bolin Chairman IPCC - concerning GCI Director Aubrey Meyer).
"If-we'd had more people like you organising twenty years ago, we would be much
further on than we are now."
Edward Goldsmith, author "the Way", publisher "the Ecologist".