

CLIMATE CHANGE, POPULATION AND THE PARADOX OF GROWTH



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Population and the paradox of growth

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The central argument in this booklet is as follows; -

In the climate changing world of the late 20th Century, we can observe that high population growth rates in developing countries are now ultimately caused by the continued pursuit of economic growth in the developed countries.

The chain of causation is simple. Economic growth in the North has been achieved by impoverishing the South. This impoverishment results in population growth.

It's true, in some ways this translates into "environmental impact". However, as corporate executives with the "Business Council for Sustainable Development" (BCSD) quoted herein acknowledge, *"Environmental arguments for slowing human reproduction rates in the South pale before the truth that most environmental offences with global impacts are caused by rich minorities with hazardous production patterns, energy use and consumption styles."*

The response is obvious; - those who are causing the problem should stop causing the problem instead of complaining about the effects. They should do this instead of presuming to comment on and further interfere with the interests of those people who have already been impoverished.

Unless this is understood and applied, the process of impoverishment will deepen. Ecologically we will all become its victims. This booklet is a plea for commons sense to take hold and prevent this tragedy from going further.

Equity and survival are inextricably linked. This has been a basic GCI contention throughout the evolution of this debate about the crisis of global change.

The term *population growth* is a smoke-screen. As with smoke, there is fire. And as with screens, something is hidden from view. We draw attention to the connections between economic growth and population growth. These 'two' are so closely linked that – like form and content, or equity and survival - they cannot be taken separately. They are simply different expressions of the same thing. We challenge the falsely optimistic assumptions in the rationale of open-ended economic growth and the creation of wealth. Runaway population growth is the inevitable result of open-ended economic growth. Global environmental degradation is the inevitable consequence of both.

RECONCILIATION WITH DISBENEFICIARIES IS INEVITABLE IF OUR MOTIVATION IS SURVIVAL

The smoke-screen language of economists has come to permeate the language of us all. The often arbitrary and selective assumptions of economics have become commonplace and dangerous.

A key example is cost/benefit analysis. Costs are posed as the opposite of benefits. However, this concept is a term of concealment. The opposite of benefits are not costs but disbenefits. Cost/benefit procedures support mere two-way trade in what is really a three-way deal. Disbeneficiaries or third parties, have been steadily created and de-linked by and from this exclusive process. It is this exclusivity that lies at the heart of the global crisis we all now face. The historical pattern has been that the beneficiaries of the wealth creation process could pay (costs) for benefits amongst themselves with money. Only now, with the advent of the crisis of global change, has the significance of disbeneficiaries emerged.

Money transforms the perpetual expectation of wealth-creation into its perennial pursuit, since it is a system of quantification and counting, where numbers are perpetual and infinite. Industrialization gave this process unprecedented momentum. However, since disbeneficiaries were not acknowledged in this, they were not counted. Loss of quality and diversity were not accounted for either.

The attempt now by economists to count and 'monetize' disbenefits - all the way to global warming - is the first acknowledgement that open-ended growth does both generate and end in disbenefit and in loss of quality and diversity. It is also the first acknowledgement that reconciliation with disbeneficiaries - both social and environmental - is inevitable if our motivation is survival. It is this that shows that survival and equity are inextricably linked. However, this reconciliation cannot result from the global monetary ex-tension of the ideological perspective of open-ended wealth creation or economic growth.

Growth measurements are by definition selective. The more quantity-based they are, the more arbitrary they become. This is so because quantity growth becomes inverse to maintaining quality and diversity. The tendency to see "more as better" may well be true in a situation of scarcity or moderation, but in a situation of glut, "more is worse" becomes the guiding truth. The global ecological crisis is as much about loss of quality and diversity as it is about quantity gains. Economic growth and population growth in relation to ecological degradation, express this truth.

The destabilisation of global ecology through human impact is a truism. However the key to ecological recovery is understanding that at a global level, continuing population growth is the inevitable product of continuing economic growth, and environmental degradation is the inevitable consequence of both. We acknowledge straightaway that this is at variance with the theory of demographic transition and will comment on this intermittently.

LIFESTYLE IS THE ISSUE

At the UN Conference on Environment and Development (UNCED), the so-called *population question* was reconstrued in chapter five of the Agenda 21 as *demographic dynamics and sustainability*. This shift is more than semantic. While *population question* is a formulation indicative of a quantity-based thinking, demographic dynamics and sustainability is clearly an attempt to grapple with issues of quality, loss of quality and disbeneficiaries. It is primarily open-ended and industrially driven economic growth that is responsible for this quality loss. As Agenda 21 states, "*unsustainable consumption patterns . . . place increasingly severe stress on the life-supporting capacities of our planet.*"

Southern countries resisted stereotype formulation of population as sheer numbers of people and their growth rates per country. Their partly successful effort was at reformulating the debate, making the rising rates of resource use per capita the meaningful measure. This concentrates not so much on people per se as on people as units of consumption and their comparative rates of resource consumption per country over time.

These are rate/intensity measurements and this approach is a move towards comparative environmental impact assessment of peoples' lifestyles. This is a necessary development towards quality and loss-of-quality-based measurement in a world of shrinking economic and ecological space. Vulnerable to this, the countries of the North - but particularly George Bush's America - resisted with remarks such as "*the American way of life is not up for negotiation*" and "we believe in the principle of consumer sovereignty". They did this because such an approach clearly turns the tables on the North. Although it has yet to be properly recognised, this call for accountability over lifestyle impact was the beginning of the end for consumerism and the political economy of growth.

In what follows we survey various positions, recent and current, and thereafter go into a retrospective assessment of the historical changes from which the present tensions have developed. We will also explore some of the philosophical contradictions that lie at the very heart of the crisis. Our interest is to present an interpretation of the energies and events which exposes the fundamental delusion behind the 'growth-optimist' rationale of the economists and commercial society.

This growth-optimist perspective has been and remains the immediate, the proximate and the long-term cause of the cultural, political and ecological distortions that comprise the global crisis.

ECONOMISTS SEEK SCAPEGOATS

In the immediate preamble to Rio, the Economist Magazine published an irritable editorial about global warming and the extent to which this issue had distracted attention from, "The Question Rio forgets".¹ "Population growth", they insisted, was the most crucial issue, grumbling about the extent to which climate change and global warming had come to dominate the agenda. The whole article was very typical of the disarray of the laissez faire economic growth-optimists position and the real tension was revealed outright; - "*... some environmentalists appear to see in global warming the revenge they have long expected nature to take on humanity for economic growth and technology . . . now, argue gleeful greens, the limits to growth are at last in sight.*"

They went on - in the face of powerful evidence to the contrary (see chart 1) - to claim that "*. . . . much of the damage that could result from climate change in the next century is occurring right now, and it has nothing to do with carbon dioxide the root cause of this damage is a combination of population growth and poverty in the third World.*" It is especially the last point here with which it is such folly to concur.

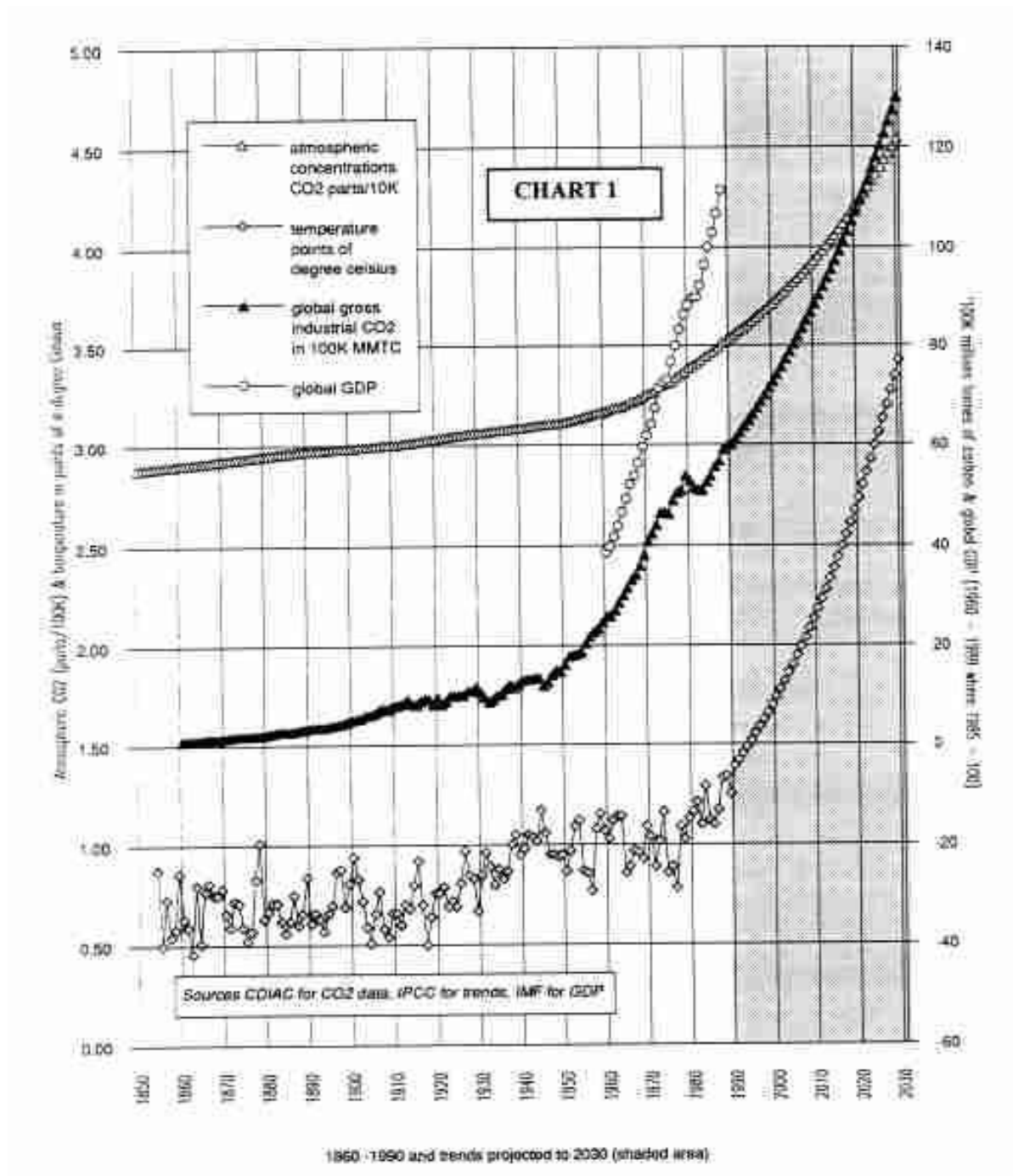
We can see quite clearly here how the population question has been deployed in an overtly political way to distract attention from the issue of human-induced global climate change. The industrial CO₂ output linked to economic growth has an established record spanning at least one hundred and thirty years.

CHART TWO

GLOBAL GROWTH CURVES 1860 – 1990 – 2030

Atmospheric CO₂ concentrations,

Industrial CO₂ output, temperature and GDP



As chart 2 demonstrates, the accumulated output separated by region, has the industrialized countries of the North responsible for 83% of CO2 output since 1860. As chart 3 demonstrates, the linkage of global industrial CO2 output and global domestic product (GDP) is correlated to a very high degree.² As chart 2 goes on to reflect, the Intergovernmental Panel on Climate Change (IPCC) made a statement of scientific consensus in 1990 in the run-up to UNCED, declaring that immediate 60% cuts in the human output of CO2 were necessary if the rising atmospheric concentrations of this principle greenhouse gas were to be stabilised at 1990 levels.³ In their view, the planet was warming and action for restraint was needed because the probability of drastic ecosystem failure was increasing.

This re-introduces us to the realities of the human condition. With this there is the beginning of a global environmental measurement of the diminution of human benefit (or the global disbenefits of industrial growth) as a consequence of the pursuit of open-ended economic growth. It is measurable not so much as impact on specific individuals or on social groups, but rather as impact on the biosphere on which we all interdepend. Measurement of who caused this is reflected in chart 2 and has irresistible political content.

Malthus (at the beginning of the industrial revolution) published his population catastrophe theory in response to the egalitarian and pro-equity arguments in William Godwin's Enquiry Concerning Political Justice.⁴ Present day economists (at the beginning of the de-industrial revolution) attempt to diffuse the equity implications of global climate change by raising the same spectre. They do this for the same reasons. The Economist again: - *"By the middle of the next century, world population will almost certainly have doubled. Before it eventually levels off, it may have quadrupled. Many of these extra people will be crowded into the third world, mainly in the countries that already find it hardest to provide food, water, jobs and health care for their people. By 2050 Bangladesh, which now has 113 million people, may have 245 million.*

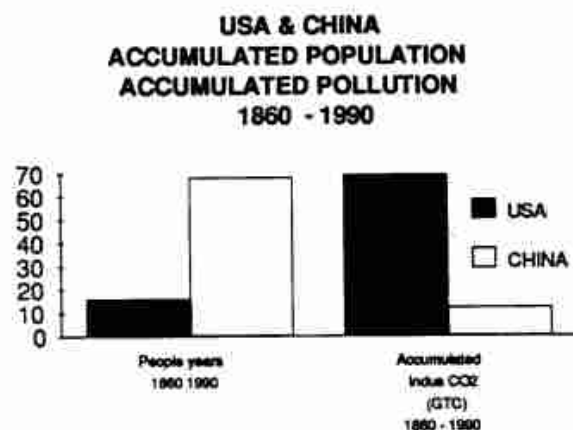
Its population density, already almost double that of Holland, would then be 1.700 people per square kilometre < 4,400 per square mile).

Nigeria, with roughly the same population as Bangladesh today may have about 440 million people by mid century." This description not only suggests the Malthusian stereotype, it critically reinforces the wrong analysis from which such stereotypes derive. Prior to the UNCED, the British Royal Society and the American National Academy of Sciences published similar observations.

A world Bank senior official Mr Lawrence Summers, has argued the "impeccable economic logic" of exporting excess pollution to countries which are "under-polluted". The Royal Society and the American National Academy of Sciences have raised the spectre of over population. Anti-immigration and anti-asylum measures are running out of control. These issues are not unrelated. The following comment suggests where control is really needed.

The USA and China have the same area. From 1860 until the present, the USA has emitted 69 billion tonnes of carbon and accumulated 16 billion people/years. China on the other hand has emitted 16 billion tonnes of carbon and accumulated 68 billion people/years.

The USA export their pollution all over the globe following Mr Summer's logic by default. The industrialized North does this in general with a headstart of about a century. To date they are responsible for about 83% of accumulated industrial CO2 output (and about 50% of non-industrial). Following Summer's logic, supposedly over-populated countries like China should export their 'excess' population to the 'under-populated countries of the North. In fact developing countries do this already by default. But what do they find? Rigorous immigration controls against economic migrancy. However there are no such controls on richer countries globalising their pollution even though this is now changing global climate. As a result, the worldwide movement of environmental migrants will increase, driven by Summer's logic into the arms of the 'go-home' tendency. Influx controls are not the answer. Restraint of export pollution is urgent priority option. Carbon taxation is imperative and only the beginning.



EQUITY IS ON THE AGENDA

During the UNCED, Maurice Strong - Secretary General of the UNCED - made more progressive comment. His audience was more international than that of the Economist, and the comment reflects the precarious political balance he had been seeking to strike. *"The gross imbalances that have been created by concentration of economic growth in the industrial countries and population growth in developing countries is at the centre of the current dilemma. Redressing these imbalances will be the key to the future security of our planet - in environmental and economic as well as traditional security terms. This will require fundamental changes both in our economic behaviour and our international relations."*¹⁵

Maurice Strong's remark was reflecting the inverse distribution of power and poverty on the planet. His remark skates lightly on the thin-ice of international diplomacy. However it still treads heavily on the disbeneficiaries of the development process and is not specific about the cause of population growth. Remembering the link between GDP and industrial CO2 pollution, chart four shows the inverse symmetry between pollution and population in China and the United States over the past one hundred and thirty years. Both countries have an area of approximately one billion hectares. China has been responsible for only 3% of the global accumulated CO2 output next to 33% from the USA.

Industrial CO2 emissions by region 1860 – 1990 incrementally by decade and as regionally disaggregated percents of total global output

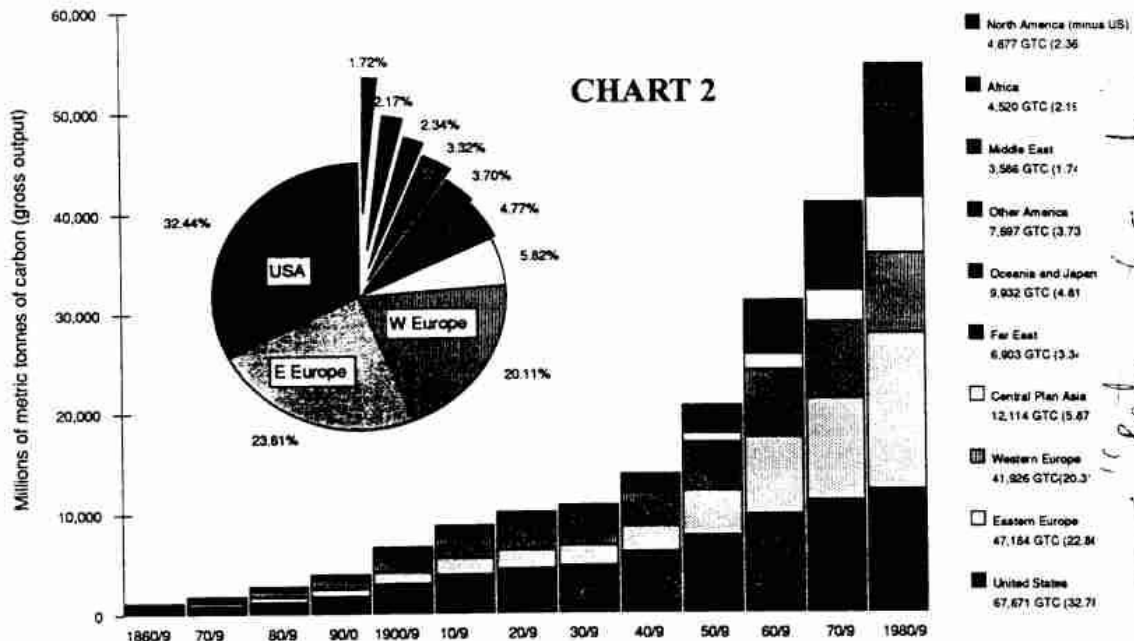
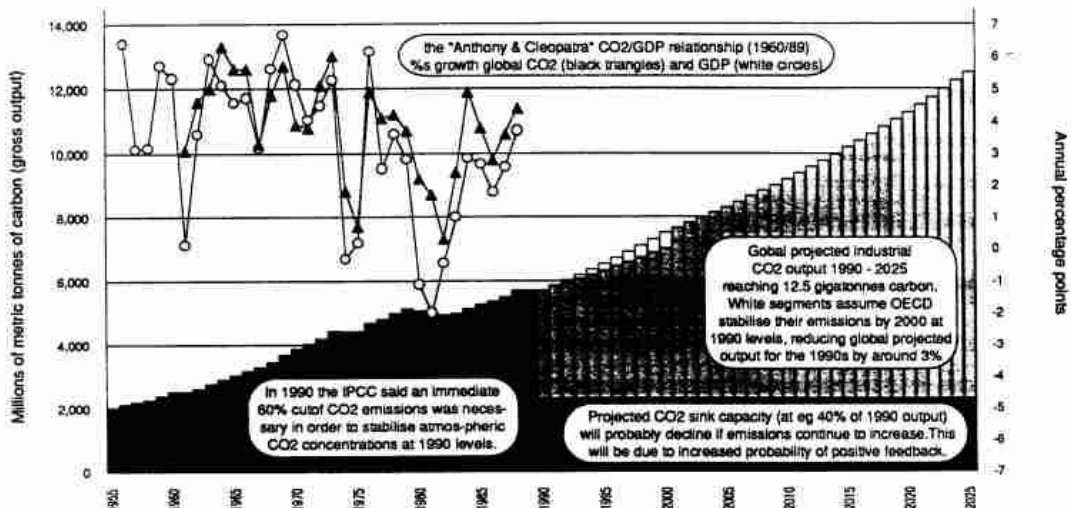


CHART 3
Industrial CO2 emissions past and projected, 1955 - 2025, with IPCC suggested stabilisation cut (60%) reflected from 1990 forward



USA - Accumulated population, industrial CO2 pollution and per capita GDP

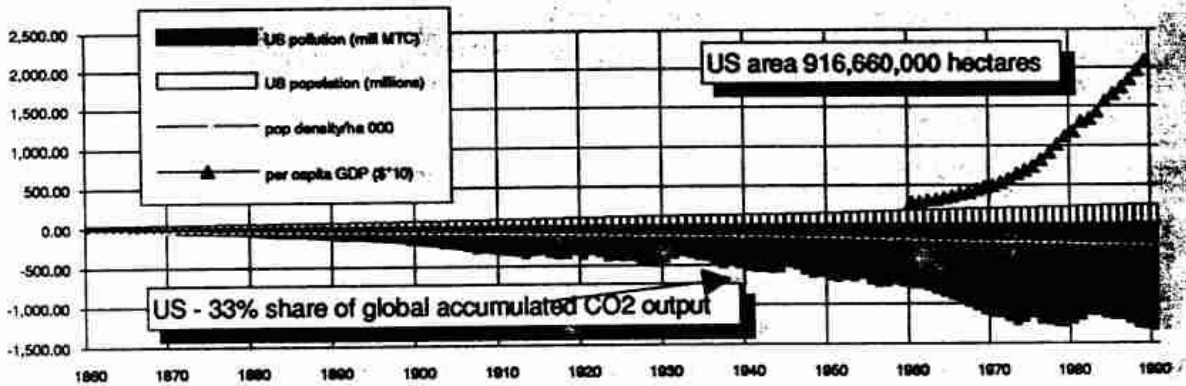
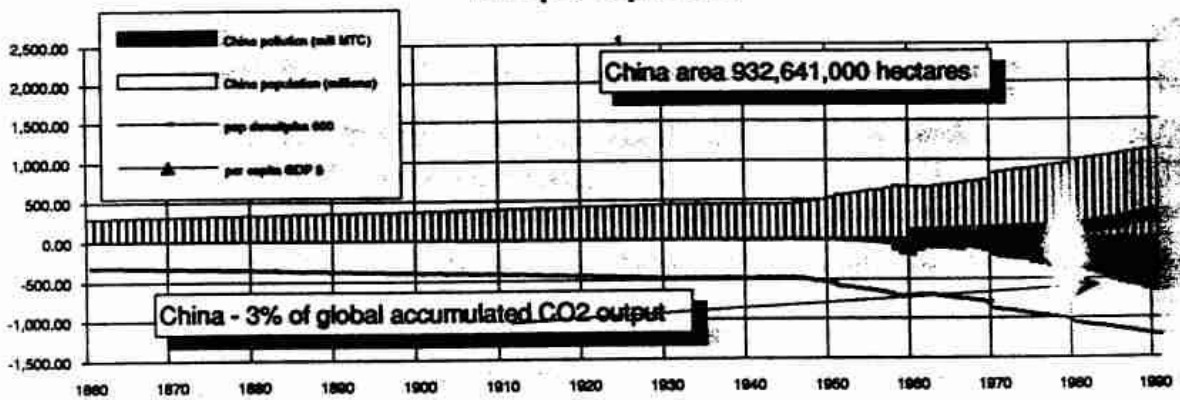


CHART 4

CHINA - Accumulated population, industrial CO2 pollution and per capita GDP



Whilst

our pairing of the USA and China suggests the inverse symmetry between pollution and people (and power and poverty), we need to go to the global picture of industrially driven global economic growth to identify causation. The pursuit of this pre-emptively created disbenefit and disbeneficiaries in the form of poverty and ecological dysfunction. The political consequence of this is that equity is on the agenda again, as Mr Strong implicitly recognizes by referring to redress and security. Security is on the agenda because the industrial growth process is raising pollution (as the IPCC defined) to levels which threaten global survival.

Redress is needed because we are all (whether powerful or poor) directly vulnerable to our impacts upon each other over time, and indirectly vulnerable to each other through our direct impacts upon the biosphere.

"... IMPECCABLE ECONOMIC LOGIC EXTENDED"

It is well known that economists are not keen on retrospective accounting. This is understandable as it is complex to the point of being baffling and up against a world of 'fait accompli'.

However, in response to the evidence of massive pollution output differentials between industrialised countries and developing countries, the senior economist at the World Bank, Mr. Lawrence Summers, circulated a memo in the run-up to UNCED talking about the "impeccable economic logic" of encouraging for example African countries to commercially exploit their "under-pollutedness" by selling pollution space to the over-polluted countries of the North. The memo drew a howl of rage and he was obliged to publish a defence and an apology. What was not recognised was the opportunity value this approach represented for the deconstruction of the dominant paradigm of economic growth optimism. It is possible to extend his impeccable economic logic to the US/China example taking in population as well. Obviously if China is underpolluted, the US is under-populated. The box comment suggests a quid pro quo no less logical (but no more sensible).

IN SEARCH OF SUSTAINABILITY

The ahistorical accounting typified by Mr Summers and his profession, does not acknowledge the main point. Nor, even accepting Mr Summer's logic and the hypothetical extension of this (see box), does retrospective snap-shot symmetry explain the problem. The point is the evolution of political imbalance, and the extent to which the industrial development process rooted in the North, has entrenched ancient quarrels. Industrial capitalism has been pre-emptively stealing a march on shared global interests and security through a massive campaign of resource appropriation and the creation of disbeneficiaries.

Much of this was already recognised as an environmental problem twenty years ago. At the time of the Stockholm UN Conference on *"The Human Environment"* - U Thant, who was then Secretary-General of United Nations, stated: - *"I do not wish to seem overdramatic, but I can only conclude from the information that is available to me as Secretary-General, that the Members of the United Nations have perhaps ten years left in which to subordinate their ancient quarrels and launch a global partnership to curb the arms race, to improve the human environment, to defuse the population explosion, and to supply the required momentum to development efforts. If such a global partnership is not forged within the next decade, then I very much fear that the problems I have mentioned will have reached such staggering proportions that they will be beyond our capacity to control."* Ten years after the decade prescribed by U Thant for reconciliation, UNCED contributors could do little but acknowledge the lack of such partnership and the loss of control.

In 1992 the newly formed Business Council for Sustainable Development (BCSD) – the elite of transnational capitalism - in their Manifesto *"Changing Course"*⁷ retained a position in favour of universal economic growth. They came nonetheless to an important recognition: - *"Environmental arguments for slowing human reproduction rates in the South pale before the truth that most environmental offences with global impacts are committed by rich minorities with hazardous production patterns, energy use, and consumption styles."*

Nearer the nub of the argument, Akio Morishima, Dean and Professor of Law at Ngoya University, Japan has asked the following question:⁸ - *"I want to stress that we must not demand that the developing countries alone, one-sidedly, must do something (about population growth). We have to be constantly asking ourselves if our economic welfare in developed countries is forcing sacrifices from the people living in poverty in developing countries; if our over-abundant consumption of energy and affluence, enjoyment of rich food, are not creating their poverty. We must reflect on this matter constantly. I believe this is the starting point of environmental ethics."* This question is embarrassing. It acknowledges disbeneficiaries whilst suggesting the source of causation. It is a reminder of the traditional Japanese inclination to view things in paradoxical terms.

Fritjof Capra deepens the embarrassment:⁹ - *"The present global population crisis is due to the rapid increase of population in the Third World, and the consideration outlined above show clearly that this increase continues because the conditions for the second phase of the demographic transition have not been met. During their colonial past the Third World countries experienced an improvement in living conditions that was sufficient to reduce death rates and thus initiated population growth. But the rise of living standards did not continue, because the wealth generated in the colonies was diverted to the developed countries, where it helped their populations to become balanced. This process continues today as many Third World countries remain colonized in this sense. This exploitation continues to increase the affluence of the colonisers and prevents Third World populations from reaching the standard of living conducive to a reduction in their rate of growth."* Here too, not only the creation of poverty but also population growth is traced to the system of wealth creation and its global impacts in modern times. Capra ascribes the cause of population growth very specifically to a failure to achieve demographic transition in developing countries because of international exploitation. This is an explanation that has been re-iterated many times throughout the decade.

He goes on to make a further point about the connection between global ecological balance and social justice and this is a key theme that has come more and more to the fore in the statements of the green-left and social-ecology groupings North and South throughout this decade as well. *"The world population crisis is an effect of international exploitation, a consequence of the fundamental inter-relatedness of the global ecosystem in which every exploitation eventually comes back to haunt the exploiters. From this point of view it becomes quite apparent that ecological balance also requires social justice."*

REALISTS VERSUS GROWTH-OPTIMISTS

All the above positions are related by virtue of their shared reliance on the growth-optimist requirements for demographic transition: even Capra's analysis, which identifies failure to achieve demographic transition in developing countries because of international exploitation. While it goes on to make points in favour of global redistribution, it fails to state the key point. If the system of international exploitation were discontinued because of fear of the population 'Nemesis', per capita rates of intensity for resource use in the industrialised countries would necessarily come down. It would have been recognised that this intensity had only been possible based on the exploitation of the countries which were failing to achieve demographic transition because of this exploitation. And it would have been recognised that this exploitation had been deterministically creating the population explosion the exploiters were anxious to arrest - as we shall argue. Our point here is that the possibility of and the need for global demographic transition implied in the quoted comment, cannot possibly be responsibly posed on the assumption that rates of resource consumption still typical in the industrialized countries, will have to be achieved in the developing countries. We will simply have made a transition to catastrophe. To illustrate the point: if no more than the entire existing global population were to take up residence in the United States, a population density a bit in excess of the Netherlands' would result. However, if the same population were already emitting carbon dioxide at current US per capita levels, the entropic¹⁰ impact of this would be the end of life on this planet as we know it. What this inexorably means is that reducing consumption by the North in the North - to coin a phrase, alleviating the creation of wealth - is far more important for global survival and sustainability than any alleviating of poverty in the South. However important this latter part may also be, first curtailing the industrialised countries' theft of global common wealth is the sine-qua-non of success for sustainability and any attendant exercise in redistribution. This is not primarily therefore a political struggle between the North and the South. It is primarily a political struggle in the North between realists and growth optimists. The comparative consumption points in this analysis have also been argued effectively by Dr Ernst von Weizsacker.¹¹

"At the Earth Summit and on the road toward the UNCED it was made abundantly clear that Northern lifestyles were not sustainable, if sustainability also meant that the respective life styles and consumption rates could be copied by five or more billion people. "Sustainable Development" the central expression of the Brundtland Report, is sometimes understood as an admonition to the South to shape its development course a little more in the direction of low resource use and also to stop population growth. Well in my humble view, this is all a misconception. Never in history have admonitions worked which told the underprivileged not to follow the path of the privileged. There are only two ways of preventing the South from further developing unsustainably: either use force and physical limits to prevent the South from emulating the North, or change the North ie change the model of the North such that it can be copied. Because I find the first alternative both immoral and unrealistic I am coming to the conclusion that sustainability is primarily a task for the North. "¹²

"Immoral and unrealistic" . . .this is the rationale of reasoned feeling. Through combined practical and ethical reasoning, it embraces paradox and says there is no choice but to offer the sustainable example. Next to this, the Economist's assertion of blaming developing countries for failing to curtail population growth is deluded. The familiar tendency - when in doubt, blame the victim - is conceited, irrational and dangerous. Our point would be that just as Oscar Wilde saw through the nineteenth century's hatred of Realism, the Economists all-too-representative irritation is nothing more than *"the rage of Caliban upon seeing his own image in the glass"* . . . fire choking on its own smoke.

THE ECOLOGIZATION OF THOUGHT

As Ignacy Sachs recently said to the working group on post-UNCED strategies for the South, *"In order to give eco-development a sound theoretical basis, an attempt should be made to thoroughly evaluate these up to now marginal and not always converging critiques of the mainstream paradigm, to give them more attention in academic circles and to restructure progressively the whole field of eco-socio-economics as part of a broader social endeavour -evaluating the impact on all social sciences of what Edgar Morin calls the ecologization of thought."*¹³

The history of the relationship between economic growth and population growth is complex. Also interpretation of this relationship is constantly changing, as with now. We see it as appropriate to move away from quantity-based measurements to quality assessments – from product to process. However, this change is difficult because it is from the specific to the diffuse. A useful part of the transition is to move from gross numbers indicators to density indicators, and from density indicators to intensity indicators and ultimately to sufficiency indicators. We shall lay out some charts to this effect later. First we acknowledge the riddle underlying this debate and look at some past commentary.

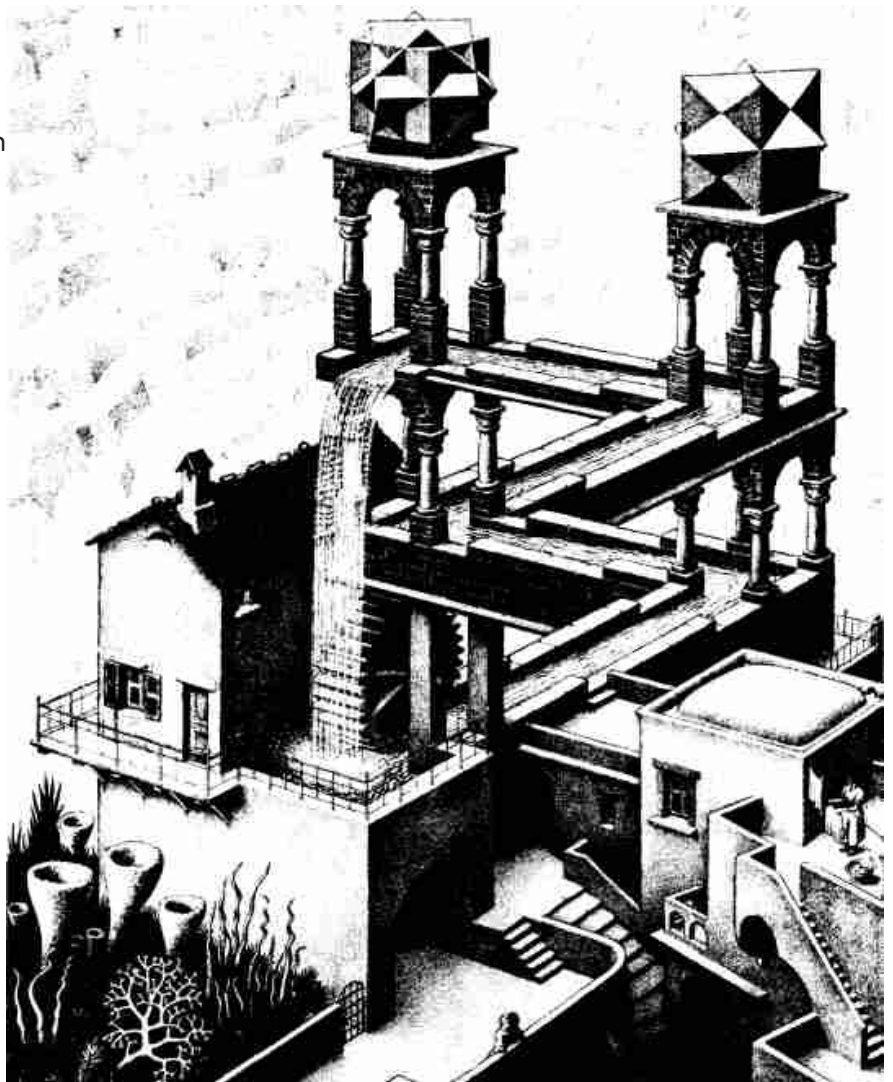
As we have said, the so-called question of population growth and the Malthusian pessimism which this formulation breeds, is really little more than the question of economic growth in mirror image, and of the economic-growth-optimism which has characterised the so-called development process since the industrial revolution. Global environmental change has brought the need to recognize new imperatives and a new synthesis. The recent history of events has been portrayed as a dialectical process between the political forces of the left and the right. However the struggle between the politics of laissez faire in the West and of control in the East is now giving way. There is a recognition of the need to address the larger polarity of economic growth and population growth. The synthesis which we propose starts with acknowledging the paradoxical - rather than dialectical - nature of our situation. We invite a recognition that the materialist-dualist formulations created psychological and linguistic niches in which dominant political and cultural prejudices anathema to paradoxicalism, came to be nurtured. Leading these have been the rationalist disciplines of the enlightenment - natural science, social science, economic science and political science.

These have tended to rely on very selective measurements of time, space, energy and materials whilst de-selecting what economists have come - strangely - to call "externalities". This term (externality costs) is a convenience term applied to cost factors outside the so-called self-regulating tendency of the market. We resist this formulation for the same reason we resisted the pseudo-opposition of costs and benefits. Externalities are not external at all. They are the disbeneficiaries of industrial impact and frequently with a very subjective sense of disbenefit. These are multi-variable ubiquitous, if elusive. They retreat from convenience-counting and convenience-terminology, indeed from the very formulations of economics. This is particularly true of the total process of global warming and biospheric change. In this process, since nothing remains unaffected, for the purposes of tracking cause and effect, everything needs to be counted in and accounted for. In consequence the externality /internality dichotomy is false. The recognition of falseness in dichotomies is at the heart of paradox and the recognition of paradox is at the heart of ecologicalization of thought¹⁴

THE TWISTED PERSPECTIVE OF GROWTH

The "ecologization of thought" requires we deconstruct the basis of economic growth-optimism. Whilst the idea of perpetual motion has always been understood as a violation of the laws of thermodynamics, we have nonetheless accepted and even intensified the idea that perpetual growth - primarily in the guise of economic growth - does not. Somehow, through a preference for optimism and a susceptibility to illusion, and by accepting the doctrine of perpetual economic growth on the back of an indiscriminate and increasing reliance on non-renewable fuel resources, we have culturally succeeded in accepting the thermodynamic equivalent of the 'waterfall' and its "perpetual motion".¹⁵

Motion in the physical and mechanical world is not perpetual. Things run 'down' because energy is dissipated as heat, and heat dissipates towards infinity. This is called entropy. Industrial processes-production, consumption and pollution - accelerate entropy inverse to the extent they displace the "pocket of negative entropy" we variously call life'. - ecology, reproduction. recycling, renaming and renewability etc. In the picture the recycling (or water) is only feigned. The appearance of negative entropy' in this 'mechanical' process is amusing because because we can even choose which way we want our water to flow 'uphill' - clockwise or anti-clockwise! Industrial development - if on a larger scale - is ultimately no less fanciful if sustainability is now supposed to be our guiding ethos.



This deceptively twisted perspective is the nemesis which has been stalking the growth of the industrial development process for the last two hundred years. Water cannot flow uphill. In biospheric process.

'Water can flow uphill' as vapour to clouds, thence to fall again as rain. But this entails rhythms, cycles and recovery in a transubstantial ecological looping of "nothing lost, nothing gained". This hydrological cycle is also intimately linked with and partly driven by the diversity and 'interest' of biological and ecological process – some describe it as the accumulation of ecological capital. However, because even all this is ultimately derived from the planetary heat income derived from solar entropy, the conservation or ecological capital is fundamentally prerequisite to sustainability and survival.

Sustainability has been described as not using up (or running down) ecological 'capital'. Not running up ecological debt is living on no more than 'interest'. or the rate at which sunlight converts to life. The fossil remnants of biomass which we have used to fuel industrial development represents ecological capital trauma in two senses: - (a) the loss of the reservoirs themselves and (b) the knock-on losses from the multiple direct and indirect production, consumption and pollution impacts of acquiring them and burning them off. By running up ecological debt in this way, we are literally cremating our future prospects. As our Intensity Indicator charts show, there's no doubt about which facet of human development and which sector of human society has bitten into this ecological capital.

CAN WE CHANGE OUR PERSPECTIVE?

This is the holistic symbol of zero-sum-game from which the 'waterfall' appropriates its free-lunch. Innumerable sustainability logos are now based upon it (eg. recycled paper). The waterfall is an ingenious graphic use of the Mobius Strip to point up the need for ecologizing our thought with paradox. Escher's waterfall loops entropy back on itself and defies gravity by subtly twisting and distorting the perspective. However, the 'impossibility' of this waterfall also takes us back to the watershed of rational and intuitive thinking where paradox corrects false dichotomies and unites with ontology. The Mobius strip refutes dialectical materialism and mechanical dualism with paradox. There 'appear to be' two surfaces, external and internal. There appear to be two loops. However, there is only one continuous line. Because of twists and looping, there is only one continuous but also half-self-concealing 'face'. On this our perceptions are continuously 'bent' between the paradoxical unity of reason and feeling - if in doubt, draw one, make one, feel one - find out.

The argument as to what the relationship is between economic growth and population growth needs to take on this paradox. *The relationship has now become mechanically causative.* Increase in human reproductivity (population growth) and increase in human productivity (economic growth) are obviously related. But population growth becomes mechanically consequent on the one-sided mechanical optimism of 'perpetual' economic growth optimism. It is not 'sociological' or 'demographic'. The detail in the relationship is complex, distracted and even attenuated, but in the broad picture there is no dichotomy. Not only are they not separate, they are inseparable. Not only are they inseparable, they are mutually reinforcing - but they are mutually reinforcing in an inverse way which has a primary forcing element. This primary element is the exclusivity of the Western rationalist rejection of paradox and the technological, cultural and political consequences of this. This relationship can only shed its bias and come back into balance with the biosphere preconditional upon acceptance of paradox and the von Weizsacker rationale of reasoned feeling. The North, with this motivation of reasoned feeling, must unconditionally and visibly act first for self-restraint. This means forgoing the futility of economic growth optimism. It means favouring sufficiency in the name of sustainability. This acknowledges limits and is at variance with the fallacy of stabilization through efficiency' dear to growth optimists.

The purposes of this paper is to support this rationale. It is therefore also to deconstruct the rejection of paradox: it is to deconstruct also the dialectical materialism of cost/benefit 'analysis': it is to speak the unspeakable on behalf of the unspoken for: it is to acknowledge disbenefit and disbeneficiaries and that their fate and the planet's fate is the fate of all.

There is obviously both mischief and sentiment involved in this - the universe afterall is a game, not a machine. So much for ontological points. Let's see what the anecdotal evidence looks like.

DON'T ASK EMBARRASSING QUESTIONS

There is such evidence for linking economic growth to population growth. On the population growth side it has a long tradition of both growth-optimism and growth-pessimism. Karl Polanyi stated. "Natural rates of increase of population may actually be an index of either cultural vitality or cultural degradation. The original meaning of the word 'proletarian', linking fertility and mendicity, is a striking expression of this ambivalence."¹⁶

Polanyi went on to state that in a market economy, *"poverty is nature surviving in society."*

This cleverly exposes the self-fulfilling optimism of growth-economists and the technique of creating (but then ignoring or denying) externalities. This economic rationale even asserted that disbenefit is caused by nature, rather than by society in its pursuit of wealth and its creation. Nature could be called to account when some embarrassing phenomenon such as 'poverty' or even 'population growth' (when linked to poverty) reared its ugly head. Just as 'conquest' of nature has been 'needed', 'conquest' of poverty became the inevitable consequential need as well. This has continued through to the present with conquest of poverty veering between alleviation and eradication.

What we find is no inclination to discuss poverty as a consequence of wealth creation.

There is an insistence with 'describing' it (from a 'distance') and perhaps dealing with it' as 'an externality'. The following by Herman van der Wee is typical in this way of much of the literature. It seems to be 'objective', but 'subjectively lacking analysis', projects fallacy. *"Economic development in the Third World during the twentieth century and especially after the Second World War was accompanied by a big drop in the death rate while the birth rate fell much less. Even more than in the West the demographic revolution led to a complete breakdown of the traditional balancing mechanisms, and the unprecedented population blast followed."*¹⁷ He continues, "Western techniques to reduce deaths are more easily absorbed by the Third World than techniques to reduce births. This phenomenon is at the heart of the whole problem The introduction of techniques to control marital fertility is a much more difficult matter. An efficient spreading and general application of control techniques demands the active participation of the population."¹⁸ This has all the authority of a billboard. The fallacy projected comes from sustaining the implicit denial of disbeneficiaries. It implies justification for growth optimism and the application of economics to externalities. In fact nature can take 'any form' for as long as it is 'externalised' and made the object of the 'attention' of a disembodied economic process. [An extreme and increasingly frequent example of the darker side is the effect of radiation on foetuses and the horrifying extent of biological deformity possible consequent on exposure to this.¹⁹] As Merleau-Ponty put it, "Analytical thought interrupts the perceptual transition from one moment to another, and then seeks in the mind the guarantee of a unity which is already there when we perceive. Analytical thought also interrupts the unity of culture and then tries to reconstitute it from the outside."²⁰

From the very beginnings of the market economy Adam Smith was growth-optimistic and very specific about the linkage between economic growth and population growth. "The liberal reward of labour . . . as it is the effect of increasing wealth, so it is the cause of increasing population. To complain of it, is to lament over the necessary effect and cause of the greatest public prosperity."²¹

And as Andrew Tylecote shows, this growth-optimist theme has continued up to the present.□

"Two hundred years ago it was taken for granted - by Adam Smith, for example - that an upswing in economic growth would lead to a corresponding upswing in the growth of population. Birth-rates would rise, death-rates fall, and there would be an inflow rather than an outflow of migrants. But since that time we have seen, in the countries which have grown richer, that the birth-rate has fallen to an extraordinarily low level - so low that in spite of the similar fall in the death-rate, and at least some net immigration, these richer countries' populations have been virtually stagnant, while poorer peoples multiplied at an unprecedented rate. Does this not cast doubt on the relation between income and population? Certainly the long-term effect of economic growth on population is a complex one. Once it has had time to affect women's status in society, and people's attitudes to children, then the way is open/or the 'perverse' [growth-depressing] effect of prosperity on fertility. But such shifts are not the immediate and automatic response to a few years' fast growth. When we look at the statistics, the old simplicities turn out to be not a bad guide to population growth over the long wave. It is, and has been, generally true that in the short run an increase in the rate of economic growth makes for an increase in the birth rate and a decline in the death rate while a fall in the growth rate has the opposite tendency."

This conclusion underwrites Adam Smith's point about the deterministic link between the two with economic growth as the forcing factor. However, it doesn't isolate population increase consequent on deprivation. Richard Douthwaite in "The Growth Illusion" (Resurgence 1992) however points to the linkage between economic growth and population growth via poverty. In the context of nineteenth century British industrial society Douthwaite cites a Dr J P Kay commissioned by Cambridge University to report on low living standards in Europe of the 1850s. "A low standard of living always tends to stimulate improvident marriages, to unduly increase the numbers of the population and to engender pauperism, vice, degradation and misery. " This is the proletarian truism identified by Polanyi, embracing the emiseration defined by Marx. This truism is now being revived by an increasing number of commentators but this time with the element of advanced pessimism to the fore over population growth. The Malthusian extent of this pessimism is to be found in innumerable 'stark' statements

over the past decade, particularly in the run-up to the United Nations Conference on Environment and Development. The World Commission on Environment and Development made the following statement six weeks prior to the UNCED. It links poverty, environment and population growth and it is an advance to realize that out of selfinterest, poverty needs alleviating on a global scale. "The time has come for a massive attack on mass poverty. Poverty, environment and population can no longer be dealt with - or even thought of- as separate issues; they are interlinked in practice and must be linked in policy formulation.

Unless poverty is alleviated, there is little chance that we will be able to stabilize world population, which has grown by 500 million since the Commission last met. Human resource development, which is essential/or sustainable development, itself requires effective population management through programmes that recognise the linkages between poverty and population growth. "23

This - albeit starkly honest assessment of the symptoms of the problem - does not attempt to explain what the cause or the Poverty population growth-loop is either. If anything it would imply that only a deficit of economic growth is the problem. In a conventional sense this is undoubtedly true. But it is a flawed observation because here again the causal links to the dominant paradigm of wealth creation remain unidentified.

What is not acknowledged is what creates poverty. In other words it too doesn't ask Akio Monshima's embarrassing question.

Forty five heads of states (in-cluding many of the most populous, such as China, India Indonesia. Bangladesh, Nigeria, and Egypt) signed a "Statement on Population Stabilization by World Leaders " and presented it to the Congress of the United States on April 24, 1987. It included the following: *"At present there are 76 million more births than deaths on our planet each year. If present rates continue, by the year 2,000, there will be 100 million more births than deaths. A billion people have been added in the last 13 years and the next billion will be added in 12 years. Degradation of the world environment, income inequality, and the potential for conflict exist today because of over-consumption and over-population. If this unprecedented population growth continues, future generations of children will not have adequate food, housing, medical care, education, earth resources, and employment opportunities. We believe that the time has come now to recognize the worldwide necessity to stop population growth within the near future and for each country to adopt the necessary policies and programmes to do so consistent with its own culture and aspirations. "*

The World Bank's "World Development Report 1992" also makes the link between population growth, poverty and environmental degradation, but doesn't ask questions. "Rapid population growth, agricultural stagnation and environmental degradation have been common to most Sub-Saharan countries in recent decades. These three factors have been mutually reinforcing... Stagnant incomes and the absence of improvements in human welfare have impeded the demographic transition... There is strong evidence that economic stagnation is delaying declines in fertility."

These statements draw attention to the population growth linkage to poverty and its feedback at least into environmental degradation. Remember the earlier statement: - "environmental arguments/or slowing human reproduction rates in the South pale before the truth that most environmental offences with global impacts are com-

(Endnotes)

1. The Economist – Cover Story – May 30th 1992
2. The GDP figures are from the IMF (1990 International Financial Statistics Yearbook). The CO2 figures are from the US Dept of Energy
3. Climate Change – the IPCC Scientific Assessment WMO/IPCC/UNEP – Cambridge University Press.
4. Gareth Steadman Jones, Languages of Class, rethinking Chartism p105 see footnote p 105
5. Quoted in “Changing Course” – (see f-note 7)
6. Penguin Atlas of World Population History
7. MIT Press 1992
8. EC’s 6th Economic Conference on Bio-ethics-Brussels may 1989
9. “The Turning Point” (Simon & Schuster 1982)
10. See later this article for entropy discussion.
11. “Why the North must act first” – International Academy for the Environment – Workshop Geneva 29/30 – 6 – 92
12. A related case is argued by Herman Daly of the World Bank Enviro Dept in his “10 reasons why Northern income growth is not a solution to Southern poverty” - 1992
13. Background documentation, South Centre, Geneva – October 1992
14. The economist William Norhaus comes to conclusions about climate change based on convenience counting which are truly delusional.
15. *“In any attempt to assess the social and economic impacts of climate change, the main factor to recognise is that the climate has little impact on advanced industrial societies... cities are increasingly becoming climate-proofed by technological changes like air-conditioning and shopping malls”*
16. In this 1961 lithograph by Maurice Escher
17. Karl Polanyi “The Great Transformation” – Beacon Press, Boston 1957
18. See GCI charts 5,6,8 and 9 in this article for historical evidence contradicting this ‘convenience counting’
19. Herman van der Wee – “Prosperity and upheaval – the World Economy. 1945 – 1980”. Pelican 1987
20. The ‘Chernobyl factor’ has arisen around other nuclear sites particularly in India where the rate of deformity around nuclear installations has created unprecedented levels of malignancy.
21. Merleau Ponty, M – “Signes”, publ Paris 1960
22. Adam Smith “The Wealth of Nations” – first published 1776 (Pelican 1970)
23. “The Long Wave in World Economy” Routledge 1992
24. Statement in London on 22 4 92, reproduced in Bruntland Bulletin issue 16 July 1992