

Humanity at the crossroads: The globalization of environmental crisis

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The whole planet is now one economic community, and the proper exploitation of its natural resources demands one comprehensive direction.

(Wells, 1946, p. 232)

The present-day global set of local sovereign states is ...not capable of saving the biosphere from man-made pollution or of conserving the biosphere's non-replaceable natural resources ...Will mankind murder Mother Earth or will he redeem her? This is the enigmatic question which now confronts (sic) Man.

(Toynbee, 1976, pp. 593, 596)

The facts are plain and uncontestable: the biosphere is finite, nongrowing, closed (except for the constant input of solar energy), and constrained by the laws of thermodynamics. Any subsystem, such as the economy, must at some point cease growing and adapt itself to a dynamic equilibrium, something like a steady state.

(Daly, 2005, p. 80)

As described in this special issue, the world is facing a series of environmental crises that reach into every corner of the globe. This is primarily due to the unprecedented growth of the human population and the world economy over the past 60 years. In the 50 years between 1950 and 2000 the world economy grew 2.5 times in terms of GDP. This was mostly driven by the exceptional population growth pushing humanity's number from 2.5 billion in 1950 to over 6 billion in 2000 (McNeill, 2000, pp. 6-8). The environmental, social and economic challenges that this poses are all interconnected and can not be treated separately. To help to understand the profound changes that are affecting the global environment, the authors in this special issue of *Globalizations* provide a rich palette of topics addressing the variety of environmental crises now facing humanity.

Humanity at a crossroads

Humanity, and with it all life on earth, stands at a crossroads. That was the message of a recent special issue of the *Scientific American* (2005) devoted to the global state of the environment and the future prospect of avoiding environmental catastrophe. These authors, discussing population pressure, poverty, species diversity and environmental economics, among other issues, warn that if we continue to ignore the signs of serious

environmental degradation then humanity will find itself facing a momentous global environmental crisis.

The *Scientific American* is only one among several major scientific journals that have recently devoted space to the grave environmental threats that are facing us today. The *New Scientist* warns that we must urgently address global warming before it is too late. By changing the climate system of the planet we are conducting an experiment that cannot be controlled. When the forces of climate change are truly unleashed it will be hard to reverse their effects. The melting of the polar icecaps, once commenced, may have a logic of its own. A host of similar publications has appeared in recent months.¹

Are these leading scientific journals merely scaremongering? If you believe the United States Government and some vocal sceptics, the situation is not so serious, and the best policy they offer seems to be taking some lukewarm technological action, just as a precaution. But that position is untenable in the light of a statement by the joint science academies of the G8 countries just before the start of the G8 meeting in July 2005 in Gleneagles, Scotland.² This statement stresses that 'the scientific understanding of climate change is now sufficiently clear to justify ...prompt action' (Joint Science Academies). Among the scientific community there is now a surprising sense of consensus about human-induced global warming and environmental deterioration in general (see Oreskes, 2004). Moreover, and more hopefully, there is also a strong sense that we can in fact control or even reverse these negative trends, but we must act decisively and immediately.

This might seem a bit of *dejavu* to some people, given that during the 1970s some writers were predicting environmental and economic catastrophe caused by unlimited pollution and resource shortages. Now, some 30 years later, it may seem that we are still waiting for this big crisis to materialize. Well, our waiting may be over. Environmental degradation is unfolding around us in ways we could not even have imagined in the 1970s.

The phases of environmental concern

Over the past 40 years modern concerns about the environment have gone through a series of phases. One of the important features of the phases is that they tend to become increasingly globalized and are directly linked to the massive economic expansion since World War II. The initial first phase started in the 1950s when the early concerns were raised about the use of chemicals in agriculture and the first comprehensive legislation to combat air pollution in Britain and the US were introduced. The first phase saw the publication of Rachel Carson's *Silent Spring* in 1962 and led to the ban on DDT in Britain and other countries during the 1960s.

The second phase started in the late 1960s, when a flurry of publications voiced concern about the degradation of the planet's environment caused by unbridled population growth and economic development. Paul Ehrlich's *The Population Bomb* warned that the rapid increase of the world's population over the course of the 20th century would soon hit a ceiling. By doing so, Malthus' thesis of population growth and collapse caused by reaching environmental limits was reintroduced into contemporary political thinking in economics as well as environmentalism. A second

seminal text published in 1968 in *Science* was Garrett Hardin's 'The Tragedy of the Commons', arguing that if there is no regulation of the use of resources no one will take responsibility to use them sustainably. The new environmental concern culminated in 1972 in the report for the Club of Rome, *Limits to Growth*, which warned of inevitable resource depletion, increasing environmental degradation, and the possible collapse of global civilisation.³

These warnings, that humanity was heading toward an ecological disaster, had a profound impact on politics and society in the 1970s. Many countries introduced measures and legislation to combat local or regional air and water pollution as well as the contamination of soils. Furthermore, measures were taken to make economies more energy efficient, something that became even more urgent after the energy crises of 1973 and 1979. The second phase of environmental concern came to an abrupt end when, by the early 1980s, scientists started to observe disturbing signs that human activity was significantly affecting the environment on a *global* scale. The third phase of environmental concern had begun.

The first of these signs came in the form of a thinning of the stratospheric ozone layer over the polar regions of the globe. This was caused by CFC aerosols used in spray cans and refrigerating systems which, when released into the atmosphere, led to a depletion of stratospheric ozone. Since stratospheric ozone protects us from deadly cosmic radiation it was an urgent problem that had to be tackled since we could not afford to let this get out of control. If that happened, life on earth was facing a very uncertain future. Swift action was taken and by 1987 the Montreal Protocol outlawed the production of all CFCs. By that time the major producers of this gas, the US, Canada and Scandinavian countries had already ceased production. Soon the rest of the world followed (McNeill, 2000: pp. 113-114).

The second global environmental threat observed by scientists was global warming, caused by the massive use of fossil fuels releasing large amounts of greenhouse gases into the atmosphere. Scientific evidence indicated that this would alter climatic patterns in a dramatic way for both humanity and many other species on the planet. The discovery of these global environmental threats was driven by scientific research and discourse and led to the emergence of a new environmental awareness that is truly global. But in contrast to the decisive and immediate action taken to counter the negative effects of CFCs, global warming has been largely ignored by politicians over the past two decades.⁴ The reasons for this are complex but in essence boil down to two important issues: the primacy of economics and competition, and the shifting balance of power in an ever more destabilized world. The collapse of the Soviet Union, the internal weakening of the US and the rise of new industrial powers like China, India and Brazil have further complicated the issues of responsibility and adjustment. But there are more fundamental causes underpinning our present global environmental crises.

Science and the primacy of the economy

Some critics have argued that the development of modern science and technology is ultimately to blame for the environmental problems we are presently facing. That is only a partial analysis, however, since science itself is not the driver of environmental degradation, species extinctions or climate change. It is society, responsible for using

technology and science in harmful ways, that is directly culpable, and there are social, economic and political pressures that lay behind this. In other words, technology or science in general are perhaps morally or socially neutral. Rather, it is the human use and misuse of science and technology that is morally and politically charged. Humans are the fundamental problem, not necessarily the technologies through which the problems are created.⁵ If we want to turn our ship around and avoid the coming global environmental catastrophes, it is we who must change our ways. What is most urgently needed for doing so is not mere short-term technological fixes but a different paradigm of political economy. This new political economy must take our impact on the planet's environment fully and realistically into account. The status quo of economic growth through globally distorted and harmful over-production and over-consumption for some and under-production and under-consumption for others is no longer acceptable.⁶

The reigning, globally orthodox economic growth model was an outcome of the misery caused by the economic depression and World War II and was meant to lift the masses out of poverty indefinitely. To do so, the remedy was thought to be unlimited economic growth, that is unlimited increase of production and consumption. This only works up to a certain point, as has recently been pointed out by economist Herman Daly,⁷ who argues that if everyone in a society has reached a high standard of living it becomes futile to try to increase the size of the economy by doing harm to the environment and the social wellbeing of members of society (Daly, 2005).

However, the problem is that global capitalism presently puts much more power in the hands of corporations than it does ordinary concerned citizens. Corporations are, on the whole, not very sensitive to environmental arguments. The main aim of large corporations is to make a profit for a limited number of people, normally the shareholders. In principle, corporations have no necessary regard for the environment if that interferes with the business of profit making. If making profit for the shareholders can be assured by excluding increasing numbers of people or by exploiting the environment, then that may be desirable from the point of view of corporations. This leads to the accumulation of wealth and power in the hands of small groups of elites. If these elites grab political power they can entrench themselves even more.

This is essentially what happened during the 1980s and 1990s when neo-liberalism rose to ideological, economic and political hegemony across the globe (see Gills, 2001). Hyper-liberal think tanks were created around the world, advocating an extreme individualism in liberalism which is anti-state, anti-social and in favour of limitless corporate power. However, there is a fundamental contradiction within this hyper-liberalism: it is against state power but at the same time it is stimulating corporate power. Some corporations are so large and powerful that they can act like states. Yet hyper-liberals regard corporations as individuals which should enjoy the same rights as individual persons. This is now being enshrined in domestic and international law, leaving citizens increasingly excluded since they can not compete with the economic, legal and political resources that can be used against them by corporations.

As a result of this legal privatization and commodification of the world, corporations now have virtually free reign and can use and deplete natural resources at will, as well

as pollute the planetary environment. What is needed to prevent this tendency is comprehensive worldwide resource management on a rational and democratic basis that does not lead to depletion or environmental destruction.

Global fate

The environment is the most global system of all, but humanity has only recently become aware of this. Although we have barely started to understand the complexities of the global system, for thousands of years we have been acting on the global environment. For example, it is now thought that the introduction of agriculture between 3,000 and 8,000 years ago led to the first anthropogenic global warming, altering the climate systems of the globe (Ruddiman, 2005). By interfering in the earth's environmental systems, humanity has unwittingly 'taken charge' of the ecosystems of planet earth. To put it into a metaphor: humanity has taken its seat in the cockpit of planet earth, and is tinkering with the controls. However, there is only one problem. We don't have a flight manual or even a flight plan! The problem is that we can't get off spaceship earth. Destroying the life support systems by pushing the wrong buttons equates to species suicide. For this reason it is also paramount that humanity takes concerted action to understand better how the earth's ecosystems really work, a task that goes far beyond normal political, economic and social planning.

At present we have only a rudimentary understanding of the earth's global environmental systems and we are barely capable of making any truly accurate predictions within the systems. What is therefore needed is a comprehensive model of all systems that make up the earth's biosphere. In effect we need a flight manual of planet earth, and only science can provide us with that. This model could be used to take the rational action needed to avoid the possibly catastrophic consequences of our actions. However, at the moment we are still largely flying in the dark without a clue of what might be happening next. What is needed is to pool our knowledge in large worldwide projects, a sort of global Manhattan or Apollo project for the environment.⁸ There are developments that point in this direction, and academies of science around the world as well as some space agencies are already pooling their knowledge to create a worldwide network of sensors, earth observation satellites and simulation capacity that will make it possible to make increasingly accurate models of the earth's systems. National interests should not be involved in this kind of undertaking since it is an effort that touches not only all humans on the planet but all living things. Humanity not only has the capability to influence and create but also destroy life on the planet, and with this kind of power comes great responsibility. Humanity has indeed taken a seat in the cockpit of planet earth and by doing so has become responsible for all its passengers, something argued by Julian Huxley several generations ago (Huxley, 1957).

Global alternative routes

What needs to be done to avoid environmental catastrophe? As discussed before we need a rethink of our economic and social policies. Second, an investment in environmental technologies is urgently needed. But this requires political leadership and imagination: instead of conducting unwinnable and expensive oil wars, we need

to invest vast sums of money in renewable forms of energy, creating economic environments that stimulate green technologies. Moreover, we need to change our ways of living in terms of transport habits, attitudes to consumption, work ethic and nature. The free market will not do this. Oil companies and multinationals will only go so far voluntarily without government action, since their first objective is to make a profit, not to save the planet. Ignoring the environment, however, could turn out to be the most ill-fated business decision of all time. To put it in the words of environmental journalist Mark Hertsgaard: 'In fact, if humans are smart, repairing the environment could become one of the biggest businesses of the coming century, a huge source of profits, jobs, and general economic well-being' (Hertsgaard, 1998).

Whether we continue to follow the route of unbridled quantitative growth, or create a radically new type of 'qualitative growth', there is only one alternative: invest in environmentally friendly technology. In the 1980s the US was the world leader in renewable energy. Now, 20 years later, it lags far behind the leading countries such as Germany, Denmark and Sweden. In Germany over 130,000 people are now employed in the renewable energy sector and the outlook is bright. This is indicated by the enormous growth of the renewable energy sector in Germany which soared in 2000-2001 by 20 per cent to around €8.2 billion. In 2003 over 900,000 people were directly employed in the environment sector in Germany, and this figure continues to rise (Hornbach, 2003). In Denmark the story is much the same.

Countries, companies and communities that invest now in these technologies will reap the benefits in the future. The potential global market of technologies based on clean renewable energies and lower resource consumption is certainly no less than hundreds of billions of dollars or euros. Some industries already realize this and press the political authorities to change environmental policies. Some would like to see clear targets set and incentives put in place so that they can adapt technologically and organizationally to meet them. Moreover, there is a case for compensatory mechanisms that operate between richer and poorer nations, whereby global resources are redirected to address the needs of the most needy. In this case this could mean introducing global taxation on pollution and resource extraction at source and redistributing the revenue to help finance clean and renewable energy technologies for the poorest societies.

Some corporations have now overtaken governments in investment in clean technologies. General Electric, for example, recently launched an initiative that aims to invest \$1.5 billion annually in research in cleaner technologies by 2010, up from \$700 million in 2004.⁹ This is more than the US government is at present directly investing in clean technologies. Oil company BP has also recently started an investment programme in research in alternative energy sources and cleaner technologies.¹⁰ This is of course in their own interest since sooner or later we will run out of oil. The only sensible strategy, if they want to stay in business, is to invest in alternative energy technologies and sources.

Some of the newly industrialized countries are, despite bad press to the contrary, beginning to understand that the future lies in environmentally friendly technology. Recently China announced that it will introduce strict EU standards on air pollution and subsidize its car industry to produce cleaner cars.¹¹ Perhaps this is also inspired

by the realization that without these measures billions of Chinese will likely choke on the air of an ever increasingly industrialized economy.

Green technologies and economies are not, however, the whole story of making more secure our survival on the planet. The market cannot do it all. A behavioural change is also needed in virtually every aspect of our way of life, including transport and energy use as well as in the preferences of what we eat and where it comes from. In order to make these changes possible we need greater social stability and social justice, which will allow governments to work with their citizens to change society and the economy, making them more environmentally friendly. That may sound utopian but in fact it is not, it is eminently practical. Governments do have the power to change environmentally harmful practices, and positive examples of this do exist, even in some of the poorest communities in the world, as the policies pursued in Porto Alegre and Curitiba, Brazil, illustrate (Menegat, 2002; Rabinovitch, 1996; Gret and Sintomer, 2005)¹².

The primacy of the economy and the idea of limitless expansion of production and consumption regardless of the real environmental costs and consequences is the root cause of our present global environmental crisis. This central idea has led to short termism, as long as the wealth of shareholders is more important than the health of the planet. This attitude must change once and for all.

Conclusions: Redefining 'progress'

The greatest challenge of the global environmental crisis is to overturn our historically deeply embedded assumption that 'progress' via unlimited exploitation of natural resources is both inevitable and desirable. Present evidence strongly suggests that humanity must now abandon the idea that such 'progress' is 'natural' and accept that, on the contrary, our present global civilization is on course for what could be, if urgent decisive action is not taken, a terminal crisis.

If we examine historically 'the progress of the idea of progress', we can see how the rise of this idea has been inextricable from that of western and then global capitalism and the harnessing of the discoveries of modern science to these ends, so much so that 'progress' itself has been naturalized in our mentality and motivates and mediates almost everything we do. Yet today we are living through a profound crisis of the idea of progress. This crisis has come about due to the manifest failures of our reigning economic paradigm, not only in relation to the global environment but in many other ways, including the elusiveness of real peace and human security and the persistence and massive extent of grinding poverty and global inequality. Therefore, and by necessity of history, we are experiencing a deep ideological and material malaise that history itself teaches us will culminate in the demise of the old social order and will require the emergence of a new set of guiding principles and practices in order to reach a lasting resolution of the crisis.

It is our view that the key move in this process of change will occur at the level of ideas, of individual and collective mentality, and in which a new environmental awareness will play a necessarily central and positive role. We must finally abandon the old political economy, and its rather crude material goals and inherent falsehoods concerning the uses and abuses of natural resources and systems, and adopt a new

paradigm based on respecting the objective laws and limitations of natural environmental systems and resources that support all life, including our own. Furthermore, we must finally give up the idea of limitless quantitative growth and consumption, Daly's (2005) 'uneconomic growth', and concentrate our energies on achieving qualitative improvement in the standard of living for all people (correcting the distortions of both over-consumption by the rich and under-consumption by the poor) and sustainability and stability. What may seem individually or even nationally 'rational' (e.g. the pursuit of bigger cars and more flight holidays) may well be irrational on a global scale.

Among the leading *philosophes* of the European Enlightenment during the 18th century were those who could already foresee that unlimited expansion of wealth and the pursuit of crude scientism would not automatically produce 'progressive' historical outcomes. True progress, argued Helvetius (1758) and Mercier (1770) would require qualitative improvements in life, through better education, public health, social organization, legal and political institutions, and moral and mental development. Greater human happiness would not come through unlimited accumulation of wealth, but rather by learning to live within reasonable means, trading only for necessities and redistributing wealth from the rich to the poor. Happiness would be realized not through ever greater production and consumption, but actually by consuming less rather than producing more.

It is perhaps time to seriously revisit, as Herman Daly does, John Stuart Mill's classic idea of the 'stationary' or 'steady-state' economy, which recognizes the limits of brute quantitative growth, due to such historical factors as population growth, energy supplies, the laws of 'diminishing returns' and related ideas on utility and futility, and the chronic tendency to 'over-accumulate' in the financial sphere, to name some of the more prominent aspects. Nevertheless, this does not at all imply abandoning the idea of genuine human improvement or progress, if by those terms we mean a steady bettering of the human condition and the greater happiness of all humanity. On the contrary, it re-invokes this idea of human progress and with even greater historical urgency than was the case several centuries ago when the original idea of progress first captured the imagination of the West (Daly, 1973; Mill, 1848). Now the difference is that the new idea of progress must apply to the globe in a way that is in conformity to the laws of nature understood in the modern ecological sense of that phrase. In conclusion, the present globalization of environmental crises could become a great opportunity for all humanity to rise to its challenge and create a renewed global civilization. Otherwise, 'Overshoot - and subsequent decline - in societal welfare will result when society does not prepare sufficiently well for the future' (Meadows et al., 2005, p. xxi).

Notes

1. See, amongst others, *New Scientist*, 185, 12 February 2005, pp. 8-11; *American Scientist*, 90(1), pp. 35-39.
2. See commentary by Jan Oosthoek in this issue, pp. 443-446.
3. For detailed discussion see de Steiguer (1997).

4. For a discussion of global warming, see the contributions in this issue by Björn-Ola Linnér and Merle Jacob (pp. 403-415) and Kevin C. Armitage (pp. 417-427).
5. In the case of nuclear weapons, which we deplore for their capabilities to destroy all life, the science is not morally neutral at all. Einstein recognized this and considered not publishing his early theories because he could foresee that one day someone could develop nuclear weapons based on his discoveries.
6. See for a discussion of growth and sustainability Verstegen and Hanekamp in this issue, pp. 349-362.
7. See Nancy Bazilchuk's interview with Daly and Lash in this issue, pp. 447-450.
8. The Apollo Alliance proposes a project on the scale of the Apollo moon project to develop clean and environmentally friendly technologies and to make the US independent of fossil fuels. See www.apolloalliance.org. In February 2005 the Global Earth Observation System of Systems (GEOSS) was launched. Its objective is to create a global earth observation network and pool expertise from around the world. See Clery (2005).
9. *GE Ecomagination*, <http://ge.ecomagination.com>, accessed 20 October 2005.
10. *BP Environment and Society*, <http://www.bp.com/genericsection.do>, accessed 23 October 2005.
11. China has adopted the Euro III vehicle emission standards developed by the EU and is planning to adopt the Euro IV standards only a couple of years after the EU itself (see EC, 2005).
12. Porto Alegre is one of the greenest cities in the world. This was achieved by introducing participatory democracy, the integration of public environmental management policies and the regeneration of public spaces. The city of Curitiba provides the world with a model of how to integrate sustainable transport considerations with the development of business, road infrastructure, and local communities. This has been actively and successfully pursued by the local authorities.

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