



CIVILIZATION UNDER THREAT?

**Dr Arthur Lyon Dahl
studies the impact of
human society on the
environment**

The world is searching for direction, for models and ideals, that will help it to chart a course towards a better future, when so many trends are in the wrong direction.

The two great ideologies of capitalism and socialism have failed to deliver their promised results. The communist system of the former Soviet Union has collapsed and other socialist states and

parties are searching for new ideological and economic bearings. The market system is proposed as a universal panacea, yet it is aggravating the plight of starving millions while allowing a small minority to live in undreamed of affluence. People from all walks of life, with all kinds of responsibilities, whether in government or religion, in business or academia, in industrialised or developing countries, are bewildered

by the pace of change as we are swept along towards an uncertain and in many ways threatening future. We lack answers and do not know how to respond or in what direction to try to move society.

The human environment

Human beings are diverse and adaptable creatures, but it is still

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amazing how little attention has been given to organising and designing our own human environment to meet our requirements. We crowd into mega cities where life sometimes seems to approach traditional descriptions of hell. (If Dante were alive today, he would certainly find new sources of inspiration for *Inferno* in urban air pollution, slums and traffic jams.) The vast housing projects that have had to

be razed twenty years after construction because they were unliveable shows how wrong we can be. Monuments to urban grandeur leave people feeling dwarfed and insignificant. Computer-managed buildings take away any possibility to control your own environment. Patterns of living and working are so disrupted that all sense of community is lost. The time lost in travel between home and work is

subtracted from time with the family, reducing the quality of family life. Most cities have gone far beyond any economies of scale such that it may be much more expensive to maintain a person at a certain standard of living in a city than in a more rural area. It is hard to find corresponding benefits that could not also be provided by other smaller-scale systems of social organisation.

With too much crowding, too many encounters with people, and the bombardment of the media, people suffer from information overload and must adopt defensive mechanisms. The quality of human contacts is degraded. People who are unable to relate to their spouses, their parents or their children may turn to television or the cinema to experience vicariously all those emotions lacking in their real life. The automobile is a particularly appealing form of transportation in western culture, in part because it is a protection against unwanted encounters, a little bit of home in which to feel secure while travelling door-to-door and often a symbol of our pretensions, a new armour to protect us from an inner vulnerability.

Western society may be technologically advanced, but it is peopled by psychological and social barbarians, unaware of how to build a human environment that uplifts rather than degrades the human spirit. We have not learned what sorts of physical environments encourage social contacts and a sense of community and reduce stress and conflict. Yet it should be possible to help communities to grow organically in ways that are enriching for all their members.

One critical dimension is that of the size or scale of communities. How many people is it possible to meet and feel comfortable with? How can we maximise enriching human contacts? What is the optimal size to support economic, cultural and recreational opportunities? How do we avoid the diseconomies of large urban size? In one study to determine the best size for a university, it was decided that the ideal student population was 14,000

because this allowed for maximum diversity of opportunities while keeping individual departments to a scale allowing full scholarly interchange and also avoided the need to start duplicating library resources. Similar approaches could be used to rethink the way we scale many human institutions and communities.



Technologies

Much modern development is conditioned by our transportation systems. Compare villages scaled to foot traffic, cities which grew up when the horse was the principal mode of transport, and the suburban sprawl that has resulted from reliance on the automobile. Older cities are now so choked by vehicular traffic that they are having to exclude the automobile and revert to pedestrian malls and public transport in city centres. In transportation as in many other fields, we are caught in the inertia of our present way of doing things, unable to change despite the inefficiencies that have often resulted from a good thing carried too far.

Given the Western psychological and physical dependence on the automobile, it is difficult to imagine abandoning it in the near future in those countries that have invested so heavily in it. One option would be to redesign the automobile so that its passenger and baggage compartment was detachable from the motor and chassis, allowing the connection of the passenger compartment to various propulsion systems.

This would allow the same vehicle to connect to high density computer-controlled electric propulsion systems in cities, high-speed mass-transit convoys between cities, and individual petroleum or bio-fuelled motors for low-density rural travel, with rapid interchange at appropriate transfer points.

The increased flexibility in the technology would allow a considerable reduction in environmental impact and permit the more effective redesign of human communities.

However, this would require a level of co-operation among auto manufacturers, mass-transit companies, the energy industry and governments that may be difficult to achieve at present. The global imposition of the automobile as a standard technology is also inappropriate.

For instance, small tropical islands need a vehicle able to carry a family of ten no more than 50km at a speed of 40km per hour, a need better met by a solar-powered or wind recharged electric plastic vehicle than a standard automobile over-engineered for the local environment and rusting out in less than two years of sea wind and salt

spray. Much more flexibility and imagination are needed in meeting the world's varied transport needs.

Our compartmentalised and fragmented approach to technological civilisation threatens our human environment in other ways.

Anyone today can invent a new product, whether mechanical, chemical or electronic, and put it on the market. In the advanced countries, many unfortunate experiences have led to increasing requirements for safety and consumer protection, and more recently for reduced environmental impact, but this is largely on a national (or in Europe, regional) basis.

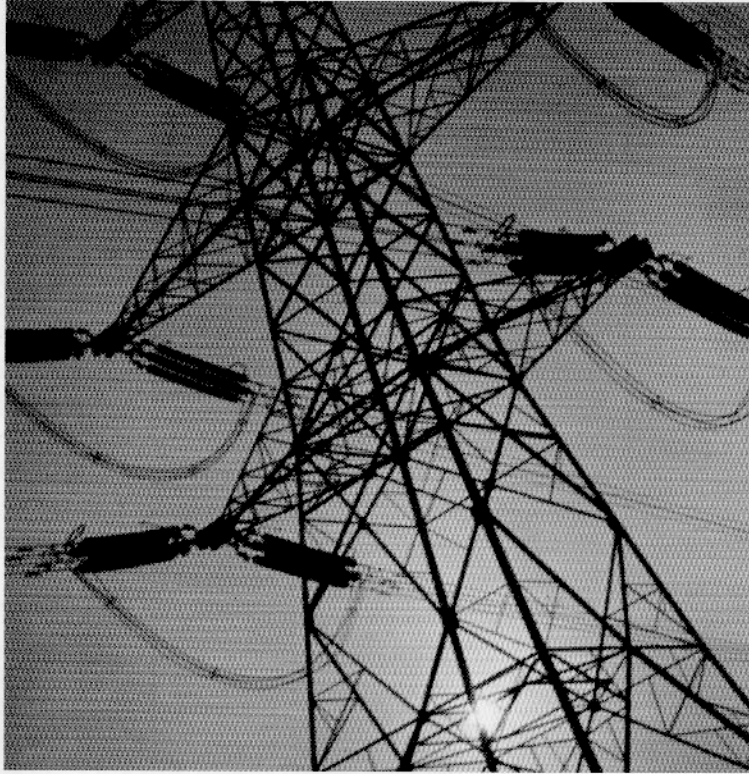
Many products that are banned or restricted at home can still be freely exported and sold in countries with much less capacity to protect their populations. Furthermore, there are no effective mechanisms to examine threatened impacts on a world-wide basis and to regulate the global manufacture and use of threatening products.

There are a number of persistent and toxic chemicals, for instance, such as PCBs and some pesticides, that are becoming planetary pollution problems.

The one successful case where a global ban is now being applied is for chemicals which are damaging the stratospheric ozone layer, where an international legal agreement was laboriously negotiated by the wealthy manufacturing countries, and then a fund established to assist the poorer countries to adhere to it.

Wastes

There is also too little examination of the effects of a product once it is used, and the result is the mountains of waste that are becoming increasingly expensive to dispose of, and rising levels of chemical pollution whose future consequences are only dimly perceived.



Often the environment can only absorb safely or purify some limited quantity of chemicals or wastes. Moderate activities within these limits show little or no environmental effect, and we may blithely continue increasing our activity until suddenly the environmental capacity is exceeded and major impacts occur. By this time, the industrial inertia and established consumer habits may make controlling the activity a long and expensive process, during which time much more damage is done.

There must be many ways in which our short-sightedness, ignorance or wilful disregard of the risks will result in unpleasant surprises in the future, creating another burden of debt that those that follow us will have to pay.

The damage to the ozone layer by halocarbon compounds is one of the first clear examples of human impact on important global process that risks causing significant global health and environmental damage. Control measures have been implemented, but because of the long time lags in large-scale global systems, it may be a century before the problem is overcome, and in the meantime the damage could be considerable.

The threat of global warming and climate change resulting from the increase in "greenhouse gases" such as carbon dioxide from fossil fuel combustion and methane from agriculture, livestock and natural gas leaks (among other sources) is an even more complex problem.

There is considerable scientific uncertainty as to the size and timing of any effects, but recent research shows that climate can be quite unstable and can change significantly over decades. A major climate shift could seriously alter the agricultural productivity and carrying capacity of whole regions, creating enormous costs for adaptation and pressures for massive population shifts with a high potential for conflict.

Yet any attempt to reduce our production of greenhouse gases significantly (reductions of 60-80 percent may be required) would mean writing off gigantic investments in industry and infrastructure, developing new technological foundations for civilisation and restructuring economies, with significant shifts in comparative advantage between countries and regions, all of which are being resisted by powerful forces in society.

Poverty

Many of the above problems are those of wealth and over-consumption. There is an equally large range of problems associated with the plight of the poor, especially those in developing countries. Poverty reduces or eliminates choices, desperation leaves little room for the option of avoiding risks or reducing long-term consequences. Survival must come first.

In some parts of the world, population growth and migrations, environmental degradation and diminishing resources are pushing people from subsistence lifestyles that were in approximate balance with their environment, over the edge into the vicious circles of overcrowding, malnutrition and unacceptable water, housing and sanitation that define absolute poverty.

The combination of high population densities, poor hygiene and sanitation, inadequate medical care, accumulating resistance in pathogens and insect vectors, and high mobility are

increasing our global vulnerability to epidemics.

The annual cycles of influenza show how easily diseases are spread around the world. Today there are growing risks both from new diseases like AIDS and from old ones that are now making a comeback like malaria, cholera, yellow fever and tuberculosis. For these, it is the widespread occurrence of poverty, allowing such diseases to gather a momentum, which puts everyone, rich or poor, at risk.

There is no way that the problems of poverty can be separated from those of the environment and sustainable development. Eliminating poverty is an essential prerequisite at the global level for progress in other areas.

The prevalence of poverty today in a world with such a high technical capacity to create wealth has its roots in the economic, social and political systems, all of which have failed to deliver the promised results to more than a fraction of the world's population. While some progress has

been made in some countries, the numbers of poor have continued to grow, and in many countries today that situation is degrading rather than improving. For such countries, the future seems grim.

What all this means is that we must question, re-examine and transform every aspect of our society. We must rethink our social and economic concepts and assumptions, and reshape every institution at every level of society. We have a unique opportunity, challenge and responsibility to design, consciously and systematically, our own future.

This is not just another responsibility for governments, which are themselves caught in the turmoil of change, but for all people, and it must be done for the benefit of the whole human race.

Based on extracts from

Arthur Dahl's book

"The ECO Principle: Ecology and Economics in Symbiosis" Zed Books Ltd, London and New Jersey and George Ronald, Oxford 1996/

Arthur Dahl

Arthur Dahl is a Californian who studied biology at Stanford University and received a doctorate in marine biology from the University of California, Santa Barbara. For five years he was an associate curator of botany at the National Museum of Natural History, Smithsonian Institution in Washington conducting research on marine algae and coral reef ecology and diving on many of the world's coral reefs, including two weeks as an aquanaut in an undersea habitat off Puerto Rico. He has been active on international scientific committees and is the author of more than 60 scientific and environmental papers and reports.

In 1974 he moved to New Caledonia

as Regional Ecological Advisor with the South Pacific Commission serving 22 small island countries. He spent 11 years in the South Pacific advising governments and international organisations in ecology, conservation and environment management, and establishing the South Pacific Regional Environment Programme. The Dahl family moved to France in 1985 where Arthur continued his work as a consultant on environmental issues. In 1989 he joined the UN Environment Programme in Nairobi, Kenya as deputy director of the Oceans and Coastal Areas Programme, concerned with pollution assessment, environmental protection and management in oceans and coastal areas of more than 120 countries. As a member of the secretariat of the UN Conference on Environment and

Development, he helped prepare Agenda 21, the action plan adopted at the 1992 Earth Summit in Rio.

In early 1992 he was named by UNEP as deputy co-ordinator and the co-ordinator of the UN system-wide Earthwatch, based in Geneva, to strengthen collaboration among UN agencies participating in global environmental assessment. In 1996 he was also appointed as deputy assistant executive director in the Environment Information and Assessment Division of UNEP.

He is actively involved in the development of indicators and sustainable development and in exploring new ways to integrate ecology and economics.



EARTHWATCH

**Assessing the global environment
for sustainable development.**

The phenomenal economic and technological development since the last century, the explosion in the human population and rising levels of consumption are rapidly pushing our society towards global limits.

Just as one cannot manage a bank account without knowing the balance of funds in the account, so we cannot manage the global environment without knowing the balance of natural resources and the state of the life-support systems of this planet.

Earthwatch (not to be confused with the non-governmental organization of the same name) was established in 1972 by the UN Conference on the Human Environment in Stockholm as the framework within which all the UN agencies can work together to monitor and assess the global environment.

The UN has now strengthened Earthwatch to implement the call of the Earth Summit to provide information for decision-making on environment and development in order to achieve sustainable development.

Earthwatch is the framework through which the UN system, in cooperation with the international community, develops programmes to maintain a watch on the planet Earth in order to collect information on the environment and its changes and to advise decision-makers so that management actions can be taken. It is composed of many separate but inter-related activities that assemble and assess information on the human

and natural environment, so as to anticipate environmental degradation and to alert the international community to ways in which human activities may be interfering with the functioning of the biosphere and with human well-being.

Through Earthwatch the network of UN specialised agencies and their partners collaborate in international efforts to coordinate, harmonize and integrate their observing, assessment and reporting activities. An inter-agency Earthwatch Working Party supports the continued development of Earthwatch. The UN Environment Programme, as the principal body, has established a UN system-wide Earthwatch Coordination office.

Major issues for Earthwatch include:

- deforestation, soil degradation and desertification
- loss of natural areas and biological diversity
- protection of the atmosphere
- freshwater resources
- oceans and coasts
- human health and the quality of life determined by the environment including the living and working environment of the poor
- wastes, hazardous wastes and chemicals and
- the risks associated with biotechnology.

UN bodies are working to achieve an international consensus on the definition and utilization of environmental and sustainable development indicators that will show trends in the environment and

sustainability for policy-makers and the public.

Since many environmental impacts, like climate change, develop over decades, global environmental observing systems are being developed for long-term monitoring of climate, oceans and terrestrial areas.

There is presently a lack of data on the environment of developing countries. A special effort through all the organisations cooperating in Earthwatch will aim to build the capacity of all countries to assess their own environments and to contribute to the Earthwatch process.

There will always be surprises in a system as complex as this planet, so the agencies cooperating in Earthwatch will keep alert to new problems and unexpected changes. As problems and threats are identified, early warnings will need to be issued to the international community and while it may take decades to see the full results, Earthwatch acts on the need to build an information system on the global environment that will help to correct present problems and hopefully make wiser choices for the future.

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