

## GLOBAL ENVIRONMENTAL CHANGE A VISION FOR A BETTER WORLD

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More than two decades have passed since the 1972 United Nations Conference on the Human Environment was witness to drastic changes all over the world, with regard to environmental issues. On the one hand, the environmental problems of our planet and the destruction of natural resources have reached even greater proportions since then; and on the other, our understanding of these phenomena, and our concept of the environment, have greatly improved. It is now recognised by every nation, and at international levels as well, that the environment must be looked at from the point of view of its interaction with development, and that we have to achieve sustainable development for our common future. Therefore there is a global obligation, on the part of present generations, to enforce environmental justice as a duty to posterity. The concept of Only One Earth has now developed into an understanding that humanity shares environmental values and posterity will share the future; and in this sense the interaction between development and the environment must be taken into consideration in all its aspects, at national, regional and global levels. This will lead toward the fulfilment of the rightful demands of people from all over the world for economic, social, political and cultural development, with due care being paid to the preservation of the environmental equilibrium of the earth.

### **What is the Issue of Global Change?**

The earth's environment is the product of a complex and powerful interaction of physical, chemical and biological processes. It changes with time through natural processes that take place over differing time scales. Changes also occur through the impact of human activities.

Examination of the earth's history shows long periods of slow progressive change interspersed with short periods of rapid change. We are aware that human activities, which have always had a local effect on the environment, are becoming felt more widely as world population increases and improvements in standards of living are sought. The demands for more resources and land on which to live, and the consequent increase in the release of household and industrial waste products, are already evident. Effects on national, regional and global scales are now becoming obvious: some of the planet's major chemical cycles are being altered through the enhanced concentrations of carbon, nitrogen and sulphur compounds; the flow of toxins into the air, water, soil and food chains is increasing; soils are being polluted or impoverished, and the vegetation cover of the planet is being reduced.

The special concern which spurs us on to improve our understanding of the processes of global change and its impact is the prospect that human activities may now have effects that are comparable in scale with those brought about by natural processes in the past and, furthermore, may be developing more rapidly.

The questions we must ask are:

- Can our planet cope with these changes without life being made intolerable?
- How can we reduce our impact on the planet and at the same time sustain development?
- What kind of world do we want to live in?

### **Understanding Global Change**

Understanding the global environment is a tremendous intellectual and technical challenge to the scientific community. To achieve it requires progress in basic theoretical ideas, i.e. those involving chaos and predictability; the deployment of the most modern technical facilities, i.e. satellites and super-computers; and the concentration and organisation of research involving very complex interacting systems and very different scientific disciplines. Furthermore it requires international co-operation on an unprecedented scale.

A major aim must be, therefore, to advance our understanding of both natural and human-induced factors affecting the global environment. This unravelling of the processes and impacts of global environmental change is perhaps the major challenge for the international scientific community over the next few decades. Much of the research required is on the fringes of traditional disciplines, and a truly interdisciplinary approach is needed both within the natural sciences and between the natural and social sciences.

A better understanding of processes and impacts may not help us to control the major natural changes that affect the environment, but it will help us to anticipate and respond to them. Similarly, knowledge of the likely size, scale and relative importance of human impacts will help us decide how best their effects might be avoided or minimised.

Understanding and assessing the many and various environmental problems that face society today, and devising rational strategies and methods for their control, is one of the major international challenges of our times. Adequate and appropriate measures for control, prevention and remedy require a sound technical knowledge of the factors and processes involved.

We must accept that environmental science is the complex and dynamic interaction of diverse scientific disciplines, including earth and agricultural sciences, chemistry, biology, social sciences, medicine and engineering, and the development of new disciplines such as environmental toxicology and risk assessment.

### **A Fundamental Approach**

Most of the factors identified at the global level are among the fundamental causes of environmental problems in developing countries. They include:

- the effect on developing countries of the imperfections in the functioning of international economic co-operation
- disparities in the levels of development of countries and unbalanced income distribution
- in the developing countries; population growth rates exceeding the pace of development
- high resource-consumption levels in the developed countries which have a significant responsibility for the rise of existing environmental problems in the world
- the need to consider the issues relating to development and the environment, in conjunction with the importance of the interaction between the two
- inability to compromise on environmental protection and economic development targets, and deficiencies in legal and institutional arrangements
- undesirable environmental conditions, often accompanying development programmes introduced by international organisations and multinational corporations, in developing countries
- failure to achieve adequate success in public awareness and participation

These factors at the same time point to the approaches which can inspire the formulation of policies and strategies for environmental protection. The idea of sustainable development sees the world as a single market and requires countries to have their share in this market, according to their present structures. However, there are important obstacles to the implementation of this philosophy, such as disparities in levels of development, the bilateral and multilateral agreements presently in effect, differences in the economic systems of the countries, the protection afforded to certain sectors, and foreign trade policies.

The attainment of sustainable development on a global scale depends, in the first place, on the attainment of a certain level of development by the developing countries. In this connection, the basis of an international economic policy should be the provision of political, technical and financial support to contribute to the development of these countries.

Although it is true that every section of society has a common interest in environmental protection, and that all environmental destruction produces results affecting the entire world, the development of a sound global approach in the long run requires the adoption of this policy by countries in such a manner as not to hinder their development efforts, and in line with their levels of development.

I strongly believe that this responsibility must be reasonably shared, by being open to the desired global co-operation.

### **Transfer of Environmental Know-How**

The transfer of technologies from industrialised to developing countries results in environmental pressures and subsequent environmental destruction. Unfortunately, the environmental policies of most developing countries are not yet sufficiently developed to counteract these pressures. In 1987, within the framework of sustainable development, the World Commission for Environment and Development published the Brundtland Report recommending the transfer to developing nations of environmentally safer technologies, along with an understanding of the environmental consequences attached to those technologies.

Within the goals of the International University for the Bio-Environment (I.U.B.E.), a research programme can be brought into existence. This programme must aim to transfer experience on environmental problems, as well as the potential means for their solution. A particular type of project must be developed called transfer of environmental know-how. Within this framework, the transferability of the various aspects of

environmental policy and planning could be implemented. In the development of the transfer model, the various restraints and conditions within the respective nations should be taken into account. A further aim of such a project is to pass on know-how relevant to environmental problems as well as possible strategies for their solution. In this way, scientific co-operation with universities and ministries working in the same field of study will become an integral part of the project and will enable close collaboration as well as constant scientific exchange between the partners. Partnerships between nations can be very effective in improving environmental protection, and therefore, we must move beyond the antagonisms of business, governments and nations, toward a common responsibility for the future to preserve the environment, which will make our present better.

My personal vision for a better world is based on effectively countering environmental problems that cause the unfavourable alteration of our surroundings, wholly or largely, as a by-product of humanity's actions through the direct or indirect effects of changes in energy patterns, radiation levels, chemical and physical constitutions and abundance of organisms. These changes may affect us directly or through our water supplies, agricultural and other biological products, or our opportunities for recreation and the appreciation of nature.

Poverty, starvation and pollution reflect mankind's failure to design social and political institutions capable of properly assessing and controlling technological innovations. Environmental problems are clearly associated with increasing population, increasing industrial development and increasing consumption of goods, regardless of the economic system. Without a clean environment, the welfare of mankind cannot be achieved. The dramatic growth of world population has unluckily coincided with the development of cheap sources of energy and with the industrial and scientific revolutions.

Population explosion, clearly, has a great deal to do with pollution growth and has a disproportionately negative impact on the environment. It is obvious, however, that rapid growth in population and industrial production cannot continue forever on a finite earth; sooner or later we shall encounter limits to growth. The solution to the problem of pollution involves both population control and the avoidance, or control, of those actions that pollute the environment.

In the past, we have had science for intellectual pleasure, science for the control of nature and science for war. But today, the whole human experience may depend on the question of how fast we now push the development of science for the survival of the ecosystem. Therefore, a large scale scientific mobilisation to attack the problems must be urged. Environmental degradation ranks high on a list which includes several other problems of equal or greater importance. Mankind must face up to all of the concerns over nuclear annihilation, poverty, racial wars, famines, pollution, the population explosion, political rigidity, etc.

Pollution is of importance because of its adverse effects on the health, safety and well-being of humans, animals and plants - those which are important as food for human beings, as well as those which are not, but which play significant roles in natural systems. The evidence shows that pollution is becoming more and more an international and even global concern. Much eco-based environmental education and research work is needed to increase our understanding of the sources and effects of pollutants, and all disciplines have a role to play in this increased understanding. Research and development are also needed to devise better methods of pollution control, although there is already a great deal that can be accomplished to alleviate the problems if society has the will to do so.

Each one of us can contribute to improving of the quality of life through personal, collective and political actions. Much of what has been mistaken for improvement in the quality of life in recent years, is now recognised by many people as having been wasteful and waste-producing consumption, providing less physical and mental satisfaction than had been anticipated. Pollution is an important area of environmental concern. If we do not act, some of the catastrophes and tragedies that have already occurred will be repeated, with increasing frequency and intensity.

For this reason, international co-operation, such as that which is offered by the I.U.B.E., for the improvement of existing environmental education, is essential to fulfil the requirements of humankind for a better environment. Consequently, I would like to emphasise the point that international co-operation and solidarity are needed - today more than ever - to prevent over-exploitation of natural resources and environmental degradation and to achieve the rational environmental management that will ensure sustainable development. Therefore, let this conference be a historic milestone, in bringing members of many nations of the world together, with an awareness of their responsibilities, to form a new level of co-operation.

I expect and hope that this conference will formulate fair and co-operative goals, strategies and action-oriented programmes, which should encompass concrete targets, taking into consideration the developmental levels of nations and their share in the responsibility for the emergence of global environmental problems. Finally, we appreciate greatly, the enormous effort and activity of Dr. Agni Vlavianos-Arvanitis in establishing the I.U.B.E. No doubt, all of us will be eager to use our utmost energy and innovation to support her in the transformation of her excellent ideas into reality in the very near future.

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