CONTEMPORARY SCIENCE AND TECHNOLOGY BENEFITS AND RISKS FOR THE DANUBE

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Human nature and the bio-environment

The progress of science and technology has created many conveniences and has enabled humans to better adapt to their environment. However, human actions have induced an accelerated degradation of natural resources. It is seldom taken into account that each problem is, to some extent, a cause and a consequence of all the others.

Today we are witnessing dramatic and interrelated changes and we are not even able to precisely evaluate the extent of the loss. Those who are involved in the rapid development of science and technology, are often not interested in the final result, and do not think about the consequences for the bio-environment. They have apparently forgotten the golden rule - all is good in moderation.

The results of the rapid deterioration of our habitat and the delayed response to such an enormously complex problem are causing a global crisis. Values are being confused and humanity is unhappy because of a lack of reasoning, based on ignorance and a lack of action, based on desire. We cannot reason correctly and safely, and we have generated the appearance of greed, anger and foolishness, causing suffering by wrongful acts of the body and mind. Desires and actions that are consequences of incorrect judgement cause suffering.

Can catastrophes be prevented? Can children grow up in a good and safe environment in the future? Can financially poorer nations be richer in cultural values, art, tradition or biodiversity? We are facing the dilemma of how to help the weak, when the market economy states that it is only right for the strongest to survive. The promotion of long-term multilateral initiatives for a more thorough appreciation of both our natural and cultural heritage can bring us together, in a common cause, only if our desires and actions are based on correct judgement.

Population growth, water and food quantity and safety, economic growth, equity between nations and within nations, degradation of social systems and institutions, crime, violence and terrorism are the pressing issues of our times. A new definition of sovereignty and of interdependence is necessary. Risks from serious environmental changes have today become too high. Not only survival in some parts of our planet, but the survival of the whole planet is at stake.

Human nature is the main cause of these problems. Human passions contribute to the confusion of values. People are unhappy because of delusions in reasoning, based on ignorance, and delusions in practice, based on desire. If people are ignorant they cannot reason correctly and safely. A desire for subsistence, grasping, clinging and attaching to everything is inevitably followed by a constant craving for every pleasant thing around, and leads people to delusions in habit. From these primary sources originate greed, anger, foolishness, misunderstanding, resentment, jealousy, flattery, deceit, pride, contempt, inebriety, and selfishness. Suffering and wrong acts of the body, and mind proceed. They cause infection and contamination of those who approach, and lead to incorrect judgement. Desires and actions arising from incorrect judgement grow in all parts of the world and cause suffering, new desires, new actions and new suffering (Figure 1).

Figure 1. The goal of the Biopolitics International Organisation

In the process of serious and rapid environmental changes man has suddenly changed the rules of evolutionary competitiveness between species, as well as economic competitiveness between countries. The crisis of bio-environmental and bio-cultural values is a consequence of the fast deterioration of our habitat and of the slow solutions adopted for such enormously complex problems.

How is the Danube affected?

In the Northern part of the Balkan peninsula - an area smaller than 150,000 square kilometres - there will be 20 nuclear power plant units (NPP) still in operation by the end of the century. These are located in Kozloduy, Bulgaria; Bouhunice, Slovakia; Krsko, Slovenia; Paks, Hungary and Cernavoda, Romania. After the year 2000, at the above mentioned locations, there will be about 870 tons of UO2, in the NPP reactors, and probably about 400 tons of spent, highly radioactive nuclear fuel, altogether amounting to more than 1021 Bq of radioactivity. This is without taking into account industrial infrastructure facilities, constructed on nuclear fuel cycles, nor the approximately 200 thermal power plants operating in the area, along with one dam on the Danube, already in function, and two under construction. Also, the world's largest chemical compa-nies are located in the Danube river basin, and they would quickly relocate if politicians decided to adopt Eco-taxes or a similar energy tax. Detergents, oil, polycyclic aromatic hydrocarbons, polychlorinated biphenels, pesticides, insecti-cides, metals and radionuclides have severe bio-environmental consequences.

The multi-purpose Danube-Tissa-Danube hydro-system is 930 km long and the biggest in this part of Europe. It has been set up to protect against flooding and to direct water from the Danube and Tissa to supply fish ponds, settlements and industry and to be used for irrigation, navigation, water sports, tourism and recreation. Due to interception and drainage of wastewaters from settlements and industry, this hydro-system is attacked by the uncontrolled emission of wastewaters from urban industries and neighbouring countries. Soil, ground- and surface-waters are polluted by the extensive use of fertilisers, pesticides and other chemicals in agricultural areas. Global Pb and Cd production, emission into the atmosphere, and deposition, from 1900 to 1980, indicate that the cumulative Pb input of 12 kg/ha and Cd of 0.070 kg/ha are much higher than in the previous period. On the other hand, the total loss of the average Pb input since 1900 is less than 10%; about 4 g/ha through drainage and 10 g/ha through crop uptake. The actual situation with Cd concentration in the soil is similar. The highest values of Pb and Cd soil concentration are more typical of countries with highly developed industries and dense populations, such as Belgium, Italy and Hungary. The same situation applies to agricultural products. Thus, wheat produced in Serbia has about 10 times less Pb and 500 times less Cd than wheat produced in Germany, Hungary or Romania.

Conflicting interests

Market economies that did not take into consideration the environment as an equal asset and built entirely on the cost of goods used obsolete technologies and production cycles to increase productivity. For the first time in industrial history, major chemical companies are run by people with no scientific background; by those with a background in economics, law, or marketing, for example.

They have said that we can be quite optimistic about the future because "optimism is much more creative than pessimism" and that the chemical industry has the greatest potential to provide solutions to feed the population, to protect the environment, and to fight diseases. Contemporary science has a smaller influence on the destruction of the bio-environment than religious tradition, customary tradition and/or poverty.

Perspectives

Problems are very complex, sometimes uncertain and unpredictable, highly dependent on each other, rapidly changing, and complicated by their global extent and origin. Current institutions are not prepared for the solution of such problems. Incapable of real understanding and resolving everyday problems, they are practically powerless and without the necessary resources to tackle transitional and global environmental problems. In most countries, we are faced with stagnation among universities, whereas interaction among bio-environmentalists and certain industrial groups is frequently productive and full of ideas and accomplishments.

Dilemmas

How can we secure the safety of the bio-environment of any given country if all other countries in the world do not join in? Is there a reason to keep on hoping? What strategy can be used for complex water problems and integrated water resources when in the river-basin of the Danube there are states at different stages of development, with different economic possibilities, with different geographical positions and natural conditions, with different needs for water, different strategies for bio-environmental protection and different other interests?

Solutions

Solutions demand putting an end to greed, anger and foolishness, whenever and wherever they emerge, by a strict control of the mind. The intellectual community must accept the responsibility to care not only for the transnational bio-environment, but to let the people understand the need to manage their resources in agreement with the environment.

The main goals of the Biopolitics International Organisation and its members are to promote correct judgement, desires and actions. Only in that case would we be satisfied with our actions and only in that case would we have the chance to reduce and eliminate everyday suffering.

Paradoxes

With an increase in funds for the protection of the bio-environment, only local results are achieved. The way in which developed countries handle environmental policies in the Third World and their own internal environmental policies indicates that the legal, cultural, religious, educational, economic, political, environmental and military institutions enforce bio-environmental racism, toxic terrorism and imperialism. Toxic wastes and highly toxic industries are generally located in developing countries, in districts where minorities live or in communities with low standards of living. People who live there have little or no local occupational or toxic waste protection. They are paid to accept toxic wastes and highly toxic industries, and, in the end, they are paid to die for the rich people. The end products of such toxic production processes are often manufactured or consumed in the developed countries.

Instead of pollution prevention, wastes minimisation and detoxification, we continue to rely on the dumping of wastes in disposal sites, usually termed "elsewhere," to signify places of no importance. Regional and international standardisation of environmental management systems implies the best known ways of management of environmental objectives and not the setting of environmental goals. In most countries scientific politics, aimed at obtaining precise and rapid responses to crucial problems of the bio-environment, are in fact put before research organisations and universities. These institutions can meet this challenge only in an incomplete and inadequate way. The paradoxes that explain this contradiction are:

- Most research institutions and universities evaluate research along strict disciplinary lines, whereas research on the bio-environment is essentially interdisciplinary. Inevitable incomprehension is raised if real priorities are given to the bio-environment in research and teaching. A scientist's concern with the bio-environment in research would meet with definite handicaps. A reorientation towards interdisciplinary studies, which, presently only a few institutions are able to carry out, is, therefore, essential.
- There are growing gaps between scholarly university education and research, and the professional activities which young graduates will have to face. The requirements that universities should satisfy are, therefore, becoming more and more complicated.
- We are witnesses, sometimes for the same reason, of a divergence between national and international bio-environmental priorities. Bio-environmental problems are interrelated and interconnected on an international scale.
- Only 5 to 10% of the current research on the environment will find some application. In some cases research does not address the real problem or cannot be integrated into decision-making process and management; it tries too late to prevent the irreversible, or is badly suited to the segmented character of the administrative structure.
- The release of funds would no doubt improve the situation in such cases, but would not change general trends. Thus, interventions are a good idea inasmuch as they can keep under control the "uncontrolled" reactions. However, they usually increase costs and uncertainty.

Bio-environmental problems are interdependent in time and space, while research activities and development actions are characterised by being carried out in isolation. To resolve the bio-environmental problems of the planet or to prevent their repercussions no single discipline, including ecology, and no research institution, administrative service or country can boast of dealing successfully with these problems. Most disciplines ignore each other or rival each other in order to obtain funds for research.

Ministries are divided into sectors, virtually impermeable to interaction, and countries have difficulties in reaching agreements on the standards of bio-environmental protection, even on a regional scale. Various Ministries of Environment are sometimes large structures that are "sectors" in themselves or, sometimes, lack the funds or the power to exercise their co-ordinating role. Instead of interaction and solidarity, indifference and even opposition dominates. Solidarity without compensation distinguishes developed countries from less-developed countries, although the greater part of the environmental damage is caused by the activities of the industrialised countries.

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