

TOWARDS AN INTERNATIONAL UNIVERSITY FOR THE BIO-ENVIRONMENT

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At the outset let me express that your Turkish colleagues are very enthusiastic for the establishment of the International University for the Bio-Environment (I.U.B.E.). Indeed, joint efforts by universities seem the most efficient tools that aim to solve universal problems.

Our old and tired planet has witnessed the most intense and interesting events of history during the twentieth century. We have been observing all the political, social and economic developments and changes of dramatic dimensions with moral admonition, amazement and sometimes admiration. As free human minds have been gaining more power and been giving rise to free democratic and parliamentary systems, the regimes and systems that have been trying to prevent the sovereignty of wisdom with their iron curtains and walls of shame based on a single power and single sound and single thinking are being reshaped.

In spite of increasing child deaths, two world wars that have taken millions of lives, numerous diseases the causes and cures of which remain unknown, anarchy and terror focuses emerging everywhere, increasing use of drugs and other similar material, the population of the world has doubled since the beginning of the century.

The serious threat of hunger began in Africa and forced international institutions in other parts of the world to take measures towards family planning, rational use of natural and cultural resources and more efficient control of environmental problems. On the other hand, for the sake of healthy generations who are to grow in a green and clean environment and who also care for cultural heritage, the weapons on which enormous amounts of money are spent are being destroyed. Disarmament came into the agenda of the world as an important task.

The curtain lifted by the approach of the Soviets to the Western World has been followed by the demolishing of the Berlin Wall and the single power and single sound replaced by sovereignty of the public wisdom. The leaders approving the unity of the two Germanies announced the official end of World War II. That was also the end of World War III that had started sometime ago and continued without the physical use of weapons. Humankind suddenly found itself in the last decade of the 20th century. As the Turkish nation, we are happy to observe the adoption by the whole world of Kemal Atatürk's principle, pronounced after the announcement of the Turkish Republic: "Peace at home, Peace abroad."

Just as humankind started dealing with art and culture again which was left aside during the last century in the peaceful atmosphere of wisdom and sense, another global problem took the first place in the agenda of the world. No one could turn his back to the crisis which recently emerged in the Gulf region and became a serious threat for the extremely delicate world peace as well as for environmental resources. Increasing reactions of the nations towards such matters show that attitudes based on rude power can neither be accepted nor permitted. For culture and art are the unique values society can only develop and mature in the constructive, productive and healthy environment of peace in every part of the world.

As we speak about art and culture, the first thing to be taken into account is our physical and socio-cultural environment, and we know the resources of both are extremely unique and valuable. No matter where we live, we all face global environmental problems. Only by coming together can we learn to work together to solve the problems that affect us all. The problems extend beyond the boundaries and indeed we have to spend joint efforts if we are to obtain solutions.

It is virtually certain that the emerging problems will increasingly be linked to global-scale problems. The world population is expected to reach 8 billion in 30 years. About 90% of that increase is expected to occur in the Third World. Within this period, the world economy could grow five or ten-fold and energy use could easily double or treble. Some of the most important changes caused by this scheme are expected to be climatic changes, depletion of the ozone layer and the disappearance of much of the world's tropical forests. Within the next 50 years, our environment may seriously be threatened by increased acidification and toxification, ozone depletion, climatic changes, shortfalls in wood supply and numerous other problems. Regional actions are expected to occur for the solution. But these actions must match the global dimensions of the problems.

The conference on the environment held in Stockholm in 1972 dramatically influenced public opinion by concentrating increased public awareness on the natural, cultural and social environment. Although the health implications of what was being discussed were profound, they were not spelled out clearly in sufficient detail. While damage to the world's resources and the impoverishment of species come as a result of policies neglecting environmental needs, the effects on human health have been much less considered. On the other hand, the importance of the matter from a human health point of view is clearly expressed by Dr. H. Nakajima, Director General of the World Health Organisation during the 42nd World Health Assembly, who said that the "world is heading for an environmental crisis and the final price will be paid in terms of

human health." Increased mechanization, irrigation, drainage and the use of fertilizers and pesticides have led to soil erosion, land, air, water, food pollution resulting in major health ramifications. The nitrate content has, for example, greatly increased in many ground water supply sources due to the extensive use of fertilizers in agriculture, seriously limiting the use of drinking water supplies.

During the last decade, there has been an increased awareness of links between housing and health. The urban environment is frequently a source of major environmental and social problems affecting human health. Polluted outdoor and indoor environments are a source of complex human exposures to chemicals as well as physical and mental health hazards.

While great efforts are made to ensure that we do not break an ankle, there are few deterrents to arrest the dumping of poisons into the source of public water supply or their injection into groundwater resources. We are clearly protected from assault by fist, knife or gun, but not from the equally dangerous threats of various pollutants in the atmosphere. There is no protection from the assault of noise, glare and stress. So, while a handrail may be provided for our safety and convenience, we may draw in a flood, suffer loss of life and property from inundation in coastal settlements, or from an earthquake or hurricane; the damage or loss of life could be due to criminal negligence at worst and unpardonable ignorance at best, without the protection of regulations.

When designing a flight of steps or a sidewalk, there are clear regulations; there are constraints against the sale of cigarettes and alcohol to minors; society reacts to the sale and use of narcotics; and there are strong laws to deter assault, rape and murder. But there is no comparable concern, reflected in law ensuring that dwellings are not built on a floodplain, on unconsolidated sediments, in an earthquake zone, or in areas liable to subsidence or landslides.

It clearly should be otherwise. There is a need for simple regulations, which ensure that society protects the values of natural processes and is itself protected. Presumably, development can occur in areas that were suitable where dangers were absent and natural processes unharmed. The formulation of these requires no new science. The knowledge of the late 19th century would be sufficient. We can initially describe the major natural processes and their interactions and thereafter establish the degree to which these are permissive or prohibitive to certain uses. When this is done, it is the duty of governments to ensure our protection through the proper exercise of legal power.

If we use water as an indicator of the interaction of natural processes, we observe that a single drop of water may appear and reappear as cloud, precipitation, surface water in a river, lake or ground water; it can precipitate in plant and animal metabolism, transpiration, condensation, respiration, combustion and evaporation. This same drop may appear in considerations of climate and microclimate, water supply, flood, commerce, agriculture, forestry, recreation, scenic beauty and so on. We conclude that nature is a single system and any change to any part will affect land processes. Therefore nature cannot be considered as a uniform commodity that is appraised in terms of time distance, cost of land and development, and allocated in terms of acres or hectares per unit of population. Nature, of course, is not uniform but varies as a function of historical geology, climate, physiography, soil, plants, animals and consequently intrinsic resources and land uses. Lakes, rivers, oceans and mountains are not where we might want them to be, but are where they are for clear and comprehensible reasons. Nature is intrinsically variable.

In many parts of the world, the biosphere is deteriorating with natural and cultural values. This deteriorating is not only an eyesore, but also a serious threat to the future of our society. It is endangering existence of life. Systematic recourse to artificial processes to replace a variety of commodities, such as drinking water and air, which nature arranged to provide us free of charge is a waste of community resources.

Considering all those inter-governmental environmental conferences and other meetings, we can talk about credibility and acceptability of environmental conservation, but need more of a political response to the environmental concern generated by ecological scientists. The real test of conservation is the state of our environment and its cultural and natural resources. Future generations will judge us by our actions rather than words.

With more and more people, each having the right to claim and consume more, a wiser, healthier relationship with earth's resources becomes critical. Another fact we don't want to see is the industrial technology and international trade that has caused a massive waste of human resources, so we are making an industry out of leisure and consuming more natural resources in the process. All these would mean we need to adopt better and more rational policies to be able to conserve the resources of the biosphere and to establish a more efficient education system that cares for the future.

As young people account for more than half of the world's population, it is of great importance to draw their interest in biosphere and related policies. Undoubtedly, the most efficient way is to adopt a different approach essential to maintaining diversity in the biosphere and an overall ecological balance, while ensuring a long-term attitude of individual and collective responsibility to achieve correct biopolitics for the natural and cultural environment.

So far the matter has unfortunately only been partially taken up by the teaching profession, notwithstanding the growing share taken by environmental education in curricula. Formal education plays a necessary and specific role in this field, but it does very little for immediate action. The high marks obtained during education cannot be the only measure of success though it is very closely related to the understanding and appreciation of natural, cultural and social values thoroughly, and as we all know it is not possible to attain the required level ignoring

these basic elements of creative manpower. The production, use and disposal of technologically sophisticated gadgets is a big part of our ecological problem. The solution to the problem cannot be found in a simple banning of billboards and non-returnable bottles, nor in the promotion of anti-litter campaigns and highway beautification. Some of the best polluters encourage such activities with advertising that professes deep concern about the environment. This kind of effort is at worst cynical and at best misguided. Dealing with our ecological crisis in population, water, air and other means of pollution, pesticides, transportation and the quality of life requires more than mere palliatives. It requires the restructuring of many aspects of society.

Education, particularly higher education, is very important to solving environmental problems. At present, universities do much of the specialized research which develops the technology. Yet the knowledge and wisdom to apply technology wisely is neglected. The direction and purpose of our culture is toward greater production, greater exploitation. In many universities, there is little criticism of the basic assumptions and value judgments that underline our current priorities.

The universities are characterized by increasingly narrow specialization in all fields. For instance, ecology as a field emphasising inter-relationships—the study of the total impact of man and other animals on the balance of nature—has very often been neglected on purpose. Yet only a few professional ecologists are willing to brave the disapproval of their narrowly professional colleagues by pursuing the broad spectrum that ecology implies. Very little is aimed at developing alternatives to our present disastrous pattern of existence with excessive production-waste, conspicuous consumption, manipulative advertising, growth for its own sake, poverty in the midst of plenty, and the destruction of air, water, soil and organisms that are the basis of life support systems. One reason that we do not get the right answer is that we are not asking the right questions.

Probably most important is that we are not providing the kind of education that will allow the electorate to evaluate the choices that are or will be available to them. It will be a challenging task to make the education system both uplifting and truly relevant to the environment. There is a chance to revitalize the system around the central theme of survival and ecology. According to our observations, students show tremendous enthusiasm for study that relates to solving the social and ecological problems that are threatening our existence. They will respond very favorably to efforts by the faculty and administration to devote more of the universities' teaching and research to important environmental problems at all levels, especially where they could get directly involved, as through work-study programs.

Examine the course content, curriculum and research of the universities and other higher education institutions to see if there is a reasonable balance between teaching and research that perpetuates present trends and that questions trends and suggests alternatives.

How can we make our field relevant to serving our cultural and natural environment? Take the surveys of graduate students to see how many are pursuing relevant theses and how many would like to do so? If the numbers differ significantly, questions should be asked about the reasons they have not chosen relevant topics.

Fellowships, grants and other means of support in different fields and sub-fields could be examined to see where the priorities are. Are these priorities good enough? How do the government agencies as well as the private sector feel about these priorities?

All the courses and everything else taught are really branches of a single science. Human ecology is one of the youngest disciplines, and probably the most important. It is the study of the relationship between man and his environment, both natural and technological. It teaches us to understand the consequences of our actions: how sulfur-laden oil burned in England produces acid rain that damages the forests of Scandinavia; how the Chernobyl nuclear accident affected remote areas and countries; how the lakes, seas, oceans and even arctic regions are polluted from extremely remote sources.

A graduate who comprehends ecology will know how to look at what is going on in the world. He will be equipped to do something about it. Whether he ends up as a city planner, a politician, an engineer, a teacher, an administrator, a businessman or a reporter, he will have had a relevant education. All of its parts will hang together in a coherent whole. If we can get enough such graduates, man and his environment may survive longer against all odds.

We hope to identify the problems, to find answers and to develop solutions and alternatives and to establish a common environmental education attitude within the framework of the I.U.B.E. At last, it became obvious that the earth's resources and the bio-environment cannot be protected at lower scales. Everyone knows that the disasters and all means of pollution do not recognize local, national or regional boundaries. It is the responsibility of our generation to develop an international approach for the solution of this world problem. The foundation of the I.U.B.E. might be a very constructive way to:

- teach how the biosphere works
- identify the vitally important natural processes
- identify the sources of problems and pollution
- identify the suitable areas for development without harming the natural processes
- identify and introduce the unique values of our planet
- to review the knowledge we gained so far to handle the problem.

The I.U.B.E. may also encourage international cooperation through the students and its education research programmes of joint international interest. I.U.B.E. courses can be designed:

- to emphasize that bio-environmental considerations are not against economical development
- to consider the availability of earth resources
- to provide the required knowledge for the rational use of the bio-environment and to teach more of the scope of multipurpose use
- to ensure the task of developing appropriate measures at the individual, national and international levels
- to explain man's power to transform his environment for better or worse
- to inform every involved individual about the ecological principles to which the future of humankind is closely related
- to introduce the powers, wonders and beauties of nature
- to develop a warmer and more humanistic attitude towards the living and non-living values of bio-environment which are equally important
- to develop a sound human interaction with nature to create sustainable use of natural resources
- to consider the matter beyond the limitations of various subjects of social, cultural and economic importance.

Undoubtedly, such an education cannot be given in an artificial classroom atmosphere, because it takes more than school. The laboratories of this university are the whole world. Therefore, it must be organized and handled in an unusual and irregular way so that:

- the students can observe the facts, make conclusions and comments and also develop solutions to the problems instead of studying text books
- the curriculum of this education program can be based on individual and team research rather than on conducted courses
- the teaching staff of the I.U.B.E. can be anyone from any academic or non-academic field with broad experience in related matters
- both the members and the students can adopt a policy towards bio-environment that is focused on a wide range of values rather than short term monetary value of the resources
- the graduates can carry responsibilities back to their countries in close cooperation with other colleagues at the international level
- a common approach on a universal scale towards the environment can be achieved.

The principal goal of the I.U.B.E. can be summarized as "to teach and to search for the methods, means and ways for preserving and protecting the bio-environment and its unique potentials for the benefit of present and future survival on our planet." This principal goal can be divided into two groups:

Bio-environmental goals

- to preserve and protect the land, water, air and all means of life they support
- to preserve areas of natural beauty, sensitive environment and unique value
- to minimize and remove sources of pollution
- to encourage selective and careful use of natural resources
- to recognize the international significance of the matter.

Social goals

- to preserve the unique characteristics of various settlements of historical, cultural and traditional importance
- to provide for public involvement
- to retain land use options for future generations
- to encourage gradual rather than rapid growth
- to allow for local variations and autonomy.

Undoubtedly, there is a need for correct policies to achieve these goals.

Bio-environmental policies for

- water
- land
- vegetation
- wildlife

- marine environment
- sensory environment
- pollution
- unique areas
- special areas

Social policies for

- heritage
- settlements (new settlement areas and traditional settlements)
- forestry
- agriculture
- business and employment
- recreation, tourism and leisure
- transportation
- energy

The above-given goals and related policies are only a few among many others. I.U.B.E. would of course deal with all of them and also develop new goals and policies accordingly.

For the realization of our aims, we trust the young generations and the cooperative approach to the universal matters, we trust that they will avoid the mistakes of our generation and the past generations have made. We trust that they will use all the education and training they received for the sake of our planet and its values so far the only known vivid spot in the whole universe.

To conclude, let us remember the words of Konrad Lorenz, holder of the Nobel Prize for Physiology: "The age of waste, carelessness and shortsightedness must be succeeded by an age of economy (in the original sense of the term) of ecological planning and, last but not least, of solidarity with our contemporaries and with future generations."

Professor **Necdet Serin** was born in Izmir in 1933. He graduated from the Faculty of Political Science, Ankara University in 1957, becoming a Full Professor in 1976 and Dean of the Faculty of Political Science from 1982 to 1987. Professor Serin is the President of the Turkish Economic Society and the Turkish Economic Society Foundation, council member of the International Economic Association, member of the administrative board of the European Community Society and member of the administrative board of the Public Administration Institute for Turkey and the Middle East. He is also a founder member of the Turkish Marketing Foundation. He has represented Turkey in many meetings as head of the Turkish delegation. He has published numerous articles and four books on Turkey's economic development and foreign trade.