

## INTERNATIONAL UNIVERSITY FOR THE BIO-ENVIRONMENT-A NEW VISION

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In a recent conference on water pollution, scientists showed a film of the Adriatic Sea. The water surface was polluted, but when the camera went underwater, a frightening picture was revealed. Not a single form of life was found in a radius of some kilometers and only a medusa had survived at a distance. In terms of biology, a medusa represents the early stage of evolution of life and this destruction indicates how far into the past technology can swing the pendulum of evolution. This film precipitated the decision to launch the International University for the Bio-Environment.

Our knowledge, acquired through technology, has made even more clear the smallness of our planet and the unity among all people. Maybe the time has come for a world referendum for the billions of people of the entire globe to vote on the same day on issues that affect our very existence on this planet to vote for the right of the continuation of human life in the millennium for bio-diversity protection for bio-environmental laws to be accepted on a world-wide basis.

The Biopolitics International University for the Bio-Environment is based on the belief that universities should be "universal" and not allow for artificial boundaries. These boundaries may be geographical but even more so they may be barriers from one discipline to another. Unfortunately, this present trend of our educational system has caused great fragmentation of knowledge. If we are to place in the core of every curriculum the better understanding of bios and the respect for the bio-environment, we can obtain a more integrated system of values that lead us to a millennium based on the respect of all forms of life and not on human arrogance and abuse of the bio-environment. At no single time in history have all people united for a common bond which may be the respect for the bio-environment. Action is needed, and decision makers need to be sensitised so as to avoid any loss of time.

We need to intensify our efforts to understand and identify today's problems by constructing our Model Global Bio-Education, to provide not only new educational methods and techniques but to expand our scope in every static idea and value. We cannot take any more risks as local problems cross national boundaries quickly. The International University for the Bio-Environment (I.U.B.E.) will encourage cooperation among all areas of human endeavor in order to promote a unified vision of technology directly related to the environment.

Bios, as far as we know up to the present only exists on our planet and is both a precious and fragile gift. The expansion of technology has revealed the enormous beauty of the macrocosmos and the microcosmos, and has made us even more aware of the unbelievable symmetry and efficiency of every living cell. And one tends to wonder:

Galaxy or galaxies  
are small dimensions  
not infinity

Neutrons are small  
very small  
not infinity

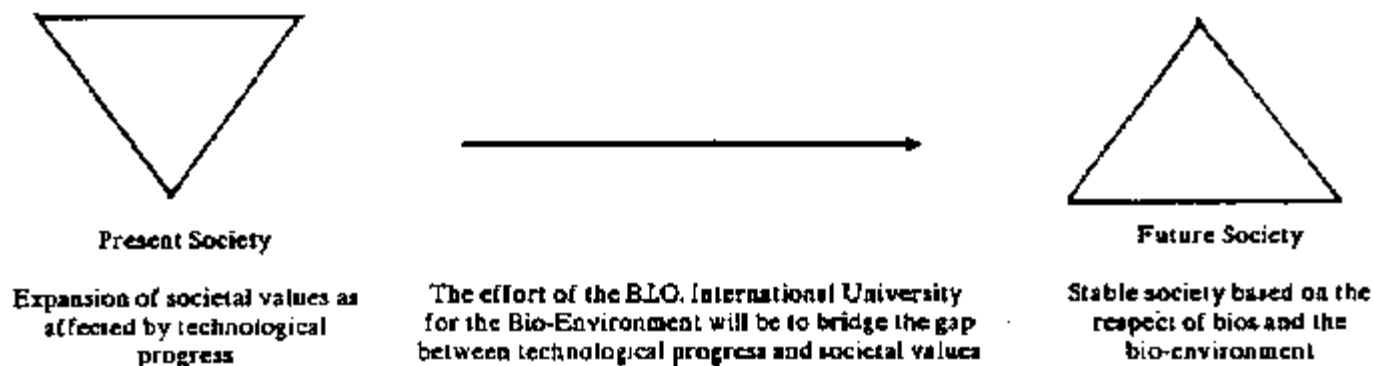
And what am I  
a neutron to the galaxy  
or a galaxy to the neutron?

(Agni Vlavianos-Arvanitis, Oscillations, 1983)

The expansion of every dimension of our society has led us to a structure of an inverted pyramid, unable to balance, due to the gap between technological progress and societal values. We need to reach as many people and decision makers as possible so as to reverse the trend of destruction, reverse the unstable pyramid, and rebuild our society placing on the wide base of the pyramid the respect for bios. Every layer of this pyramid needs to be built following the bio-assessment of technology where the positive aspects can contribute to the safe continuation of life on our planet.

The march towards progress resembles the galloping of horses of Phaethon, an uncontrolled march may lead us towards the fire of destructive progress. If man is to hold the reins and control the gallop of technology through wise bio-assessment, then we can look forward to the chariot of

progress and hope that it will lead us to the sunlight of knowledge and the progress leading us to the harmonious existence of the body of bios. Humanity can then become the true charioteer of life.



Technological progress has the power to provide a better future for humanity. In order to benefit from the expanding horizons of knowledge, however, our institutions need to be infiltrated with new and challenging ideas. Excessive specialisation in modern-day educational systems has contributed to technological progress, but is also responsible for the fragmentation of thought. An integrated vision may be created by requiring present universities to evolve into a meta-university model by meeting the challenges of the new millennium. In view of the existing threats to the preservation of bios (life), there is an urgent need to restructure the educational framework and to redefine our priorities.

In an effort to bridge the gap between technological progress and societal values, the I.U.B.E. will foster the B.I.O goals through global bio-education in the following manner:

- International educational reforms so as to shift from an anthropocentric to a biocentric curriculum and place the better understanding and appreciation of the bio-environment as core of an integrated educational system. A large number of universities and colleges are being encouraged to review their curricula and include the Bios Theory in the study of business, economic, political science, law, arts, and theology. Biopolitics has been established as a course or major in well known educational institutions.
- International cooperation for the better understanding and appreciation of bios and the bio-environment. Bios recognises no ideological or geographical boundaries, no East-West, North-South or developed-developing countries. Bios provides the unifying force for the harmonious co-existence of all forms of life. Parallel to internal problems, nations will undertake an international task. In order to implement global bio-education, the goal is to seek the cooperation of universities, governments, industries, institutions and individuals in an effort to introduce a new vision in curricula. Innovative educational programs should be devised for teaching via satellite transmission. New course material must be incorporated into existing curricula and programs in order to increase public awareness on life-supporting issues. Lobbying groups should be established to pressure world media organisations to include more news and information on bio-environmental issues in their publications and programming. Satellite television networks, for example, could include a bulletin or update on environmental issues along with the weather and stock market reports which accompany each news program.
- International legislation on Bios Rights. It is important to realise that environmental deterioration constitutes a threat to all forms of bios, microorganisms, plants and animals, which cannot defend their rights and require new Bios rights legislation for protection. In view of the recent technological advances, new dimensions of understanding are arising. Our ripening into maturity and our survival depend on our ability to assimilate the explosive progress of technology towards a new culture webbed with unifying values and based on a better understanding and respect for bios rights. Bios rights provide the opportunity to see the future with a new vision, allowing for technology to serve as the revelation of truth. Creativity and economic growth must be channelled to foster the defense for bios and bio-diversity, reduce environmental risks and promote compatibility between technological progress and the bio-environment. The respect for bios must serve as the core of thinking and action.

figure2

- Worldwide bio-assessment of technology as an effort to bridge the gap between technological progress and societal values. Progress may be viewed under the spectrum of "Bios in the Next Millennium", so as to retain the positive aspects of technology that contribute to the preservation of the bio-environment. In a dialectic exchange of views, experts in respective fields will be asked to present the thesis and antithesis, and then create the synthesis of new values leading to a harmonious global community. The effort will be to identify the factors causing the decline of values, harness the damages to the bio-environment such as species extinction, water and atmospheric pollution, ozone layer destruction, greenhouse effect, soil erosion, acid rain, nuclear waste and so as to really benefit from the positive contributions of technology. Greece is proposed as the ideal meeting place for people from all specialties to convene and assess progress and values. Every corner of Greece, depending on its cultural contribution to mankind, may serve as the meeting place for providing the needed new dimensions. Patmos, the island of the Apostle John, may serve as the meeting place for theologians to examine the effects of technology on religion and propose future values for bios. Icaria as a meeting place for aeronautical engineers. Mythology, history and tradition, as well as modern technology, may combine to provide a future based on a perspective of hope, as well as respect for creation.
- In addition to the theoretical search of values, action will be needed in order to use the progress of technology for preserving the bio-environment.
  - Develop a bio-syllabus and new curriculum materials for pre-school, elementary, middle and higher levels of education and audio-visual materials on issues related to bios and the bio-environment.
  - Encourage the creation of a clearing-house for both dedicated individuals and established organisations to provide, through the use of computer link-ups, a network of people wishing to cooperate and contribute towards saving the bio-environment.
  - Generate environmental action groups, utilising both the enthusiasm of youth and the experience and know-how of retired people to tackle local bio-environmental issues.
  - Encourage life-supporting economic strategy to replace destructive policies and a world-wide interdisciplinary exchange of information promoting the appreciation of the bio-environment. Exchange of bios-supporting data between cities, individuals, universities, etc.
  - Promote the establishment of a computerised Bank of Ideas in which scientists, academicians and philosophers, as well as every individual, may bequeath their thoughts to create a rich depository of information and reflections on bios.
- The sensitisation of public opinion to the ramifications of the biological sciences so that more people will realise that progress in the biological sciences relates to their own specific field of interest. The impact of this progress may open new fields of human endeavour such as bio-legislation, bio-environment, bio-literature, bio-arts, bio-linguistics, bio-economics, bio-communication, bio-history, bio-education and bio-diplomacy. Until a few years ago, medicine was based on the study of symptoms, the diagnosis and the corresponding treatment. At present, genetic engineering provides a revolutionary approach to medicine due to the understanding of the biological mechanism of disease. For the first time, in the multi-million year history of life, the genome can be analysed and changed. The biological sciences are causing the major revolution of our times and raise the awareness for a unified concept of life.

## Bio-Legislation

In order to envisage a more harmonious existence in the future, bio-legislators will need to develop the framework regarding rights of every living species. Bios Rights will secure a feeling of interdependence between humans and all forms of life and thus reduce the destruction of the bio-environment.

Intense efforts are under way to decipher the human genome. This enormous task of determining the sequence of three billion nucleotides and identifying over 100,000 individual genes will cost several hundred million dollars but will completely revolutionise our concept of health and disease. Several thousand diseases will be identified in the foetus by comparing its DNA with normal sequences. This science fiction-like plan will be realised before the end of the century. Many ethical questions arise. Bio-lawyers and bio-legislators will be facing daily challenges such as:

- should abortion be allowed in case lethal diseases are identified in the foetus? Presently, when Down's syndrome is identified, pregnancy is terminated. What will be done when thousands of diseases are identified?
- does a potential human being possess rights from the stage of the fertilised egg, the three-month old embryo, the foetus, the new-born baby? If so, should research on artificial insemination and other technological interferences in fertility be banned or should further research be promoted, thus improving our understanding of health and disease?
- rumours already exist regarding women in the Third World who allegedly sell their foetuses. Transplant of foetal tissue removed during abortion provides hope for Parkinson's and Alzheimer's disease, sickle cell anemia and diabetes.
- sex-testing of embryos through amniocentesis or ultrasound examination have raised fears of abortions among certain cultures. Centrifuge separation of male-producing or female-producing sperm may induce additional problems.
- are human tissues and cells our property or do they belong to the laboratory to which they have been donated?
- can patent law protect the discoverer of new bio-technology products?
- is the human genome to be patented, or is scientific progress the revelation of natural truth belonging to everyone?

In order to allow for the incorporation of new values with the perspective and vision required for the future, enlightened bio-legislators are essential. Legislators with limited technological criteria will be inefficient. New ethical problems are created by the rapid advance of the biological sciences. It is an urgent need to include the study of biology in fields such as law, political science, economics and social sciences. Without an informed and educated vision, it will be difficult to decide on new legislations and to construct the framework of future societal systems.

### **Bio-Medicine**

When the wheel was discovered, no one could have predicted the endless chain of cars found in the streets of modern cities. A similar revolution is taking place today in biology and medicine. Until a few years ago, medicine was based on the study of symptoms, the diagnosis and the corresponding treatment. At present, genetic engineering provides a revolutionary approach to medicine due to the understanding of the biological mechanism of disease.

Biotechnological applications, such as genetic engineering, expand the scientific horizon, providing the option of prenatal diagnosis and the possibility of changing the genetic code and transferring human genes into bacteria. Bacteria are thus converted into factories for the production of human proteins. For example, insulin extracted from animal tissues had high cost and small effectiveness. Today, bacteria are producing human insulin at a low cost. Genetic engineering is also used to develop plants with built-in mechanisms of protection against environmental threats. Silk worms are used to turn out hepatitis B vaccines with improved efficiency. An appropriate gene is inserted into the worms which produce the protein for the vaccine.

Genetic engineering is increasing hopes for the cure of cancer. In addition to accepted treatments like surgery, radiation, chemotherapy and interferon, new hopes have been provided by:

- changing gene expression
- highly specific stains extracted from algae provide specific and fast diagnosis especially during operation
- interleucine-2 that strengthens the body's defense system
- following the fractionation of genes in millions of parts, scientists have transferred these fractions to bacteria. They were able to produce a new protein called "colony stimulating factor" that mobilises the body's defense system and provides new hopes even in terminal cases.
- the NMR diagnostic method for early detection through the identification of specific lipoproteins in blood.

### **Bio-Athletics**

The Bios Theory proposes the revival of the Olympic spirit shifting athletic competition from the present gladiator-like style to a balanced expression of the body and mind and a wholesome respect for bios. "Healthy mind in healthy body" was the philosophy of classical Greek schools. Emphasis was placed in educating young people in reading, writing, Homer's literary works, history, theatre, music, democracy and athletics so

that their city could be honoured with a victory in the Olympic Games. The above ideals seem highly desirable even today, but today's society has become a great deal more complex. The role of education has been altered. Education itself needs to be further revised in order to incorporate technological progress and the revival of ethical values.

In the Olympics, athletes achieve high levels of performance. It seems as though the full potential of the human body has been reached. However, with new information derived from brain research, great improvements have been obtained. Biofeedback is applied in attention control and focusing power. Computers provide model performance by simultaneous analysis of brain waves and muscular coordination. Improved understanding in sport science can be used not only by Olympic athletes but also by the general public. Recent research in athletic science has led to overall health improvements and an unbelievable performance in all forms of athletics.

### **Bio-Defense**

The term bio-defense can be defined on several levels. Radars and radios transmit information based on sight and sound. However, insects, by using their sense of smell identify their mates or enemies from miles away. This "individualised" recognition system, based on the sense of smell, still remains unexploited. Cells also have a recognition capability. In man, at least one million different antibodies exist to distinguish the specific enemy and utilise "individualised" defense. This does not eliminate the parallel existence of a generalised response by lysosomes or white blood cells. On another level, bio-defense refers to the protection and preservation of bio-diversity in our environment. In fact, every few minutes the bios loses species of living things. Also, defense systems can be used in the interests of protecting the bio-environment and control and enforce bio-legislation.

### **Bio-Energy**

In the search for new sources of energy, we need to turn our attention to plants. We cannot sit in the sun and "synthesise a bun". Plants, however, convert solar energy directly into food and oxygen. Diesel motor oil is already being used from the extracts of oil-producing plants. Recently, some bacteria have been found to produce the most expensive fuel, hydrogen. Japanese scientists cultivate bacteria that feed on inexpensive cellulose and produce hydrogen. Research in the area of solar-hydrogen energy has been successful and promises numerous environmental advantages.

### **Bio-Communications, Bio-Computers and Bio-Linguistics**

Biology has served as a model for computer memory storage and the processing of information. Research in the function of brain cells, may reveal the mechanism by which cells store memory data in the form of abstract thoughts. Once this has been achieved, the same system of chemical storage of thought may be introduced into expert computer systems, thus widening the scope of analysis. In fact, using artificial intelligence, which is rooted in the biological sciences, scientists have developed expert systems for the diagnosis of diseases and psychological analyses.

Every stimulation of sight, smell or hearing creates electric waves. These waves are transmitted through neurons to the synapses where they are converted to chemical secretions of neurotransmitters. Every neuron contains about 100,000 synapses, which constitute the bridge to other neurons. The number of neurons in the human brain is estimated to exceed 100 billion. There are more neurons in the brain than stars in the galaxy. Ten billion calculations per second are required for every image to reach the optic nerve. With improved understanding of the mechanism of sight and the other senses, robots are already being produced. These for example, robots are used to recognise the colour of ripe oranges and collect 300 per minute. They are being used in many areas of agriculture, industry and scientific labs.

The study of hearing provides an improved understanding of animal communication, such as the songs of the whale and the language of dolphins. Acoustic waves are being analysed by computers, in order to implement automatic translation. Soon, one will speak on the telephone in French in Switzerland and Japanese in Japan. Acoustic waves will be analysed and translated automatically by a "speaking computer".

In relation to the sense of smell, every individual has a specific genetically determined odour in the same way as having specific fingerprints. Artificial intelligence is being applied in the analysis of odour and recognition of the individual.

Presently, immediate help may be provided to potential heart attack victims by "Medphone", a "transtelephonic defibrillator" connecting the hospital to the home of a high-risk patient.

The development of Bank of Ideas, using a computer data bank, will facilitate the dissemination and sharing of information, thoughts, and achievements among scientists, academicians and philosophers, as well as every individual.

### **Bio-Economy**

The participation of a country in the progress of the biological sciences may be considered as a barometer measuring the future social and economic development. The ramifications of the biological sciences have an immediate impact on the economy and may be named "bio-economy". This should not be considered as a theoretical idea but a need for competitiveness and progress.

New technical, social and economic horizons are opened by Biopolitics. Biological sciences have ramifications in every area affecting the overall world economy, such as health, agriculture, the arts, athletics, marketing, and business in general.

### **Bio-Agriculture**

Knowledge of genetics and biotechnology leads to the improvement of agricultural products, which benefit all of mankind especially the thousands of hungry children.

Bio-agriculture has become a multi-billion dollar a year market. Some examples are given in order to comprehend the new dimensions that are being provided:

- it is now possible to insert complete groups of genes into plants and animals, and to use genetic markers like (CAT) for the gene of the enzyme chloramphenicol acetyltransferase.
- the recent use of luciferase is a thousand times more sensitive than CAT and is used for visualising the genetic activity in vivo. This has vast applications in agricultural and nutritional products as well as in medicine. In the future, it may facilitate genetic diagnosis and treatment of genetic diseases.
- green plants are being transformed to turn out such medicinal and industrial substances as insulin, oils, fragrances and flavourings
- strawberry-flavour content has been vastly enhanced by inserted genes
- an increased yield of natural vanillin has been realised
- sunflower seeds may be used to produce oil with a higher proportion of ingredients useful in lubricants and plastics
- disease-free potato seeds are used to plant an acre with no more than pound of seed, instead of the ton of tubers that were needed up to the present. Seeds do not rot in storage and cut potato growers' costs
- plants could incorporate growth genes from trees to make them faster maturing and more productive
- new plants are being developed - their leaves become assembly lines for producing high-value oil or flavourings. Other plants can be made as nutritious as eggs but without the cholesterol
- genes for natural electroluminescence from fireflies and deepwater bacteria have now been identified and will soon be transferred in plant cells
- recombinant DNA methods applied to plant breeding have yielded products in high demand, such as altered corn, oil palm, alfalfa, carrots, sugar cane, etc.
- through biotechnology, plants are being efficiently used for the production of essential pharmaceutical products and hybrid seeds for crossing plant varieties.

Bio-technology will offer over-abundant food. New plants resistant to disease and providing better crops are already being produced. These self-protecting crops decrease the need for the application of herbicides and pesticides. Intense competition in obtaining better know-how of biological mechanisms is leading to enormous profits in animal breeding, milk production, wine making and flower marketing.

Bio-economists need to analyse the significant contribution and impact of these new technologies.

### **Bio-Literature**

Literature may serve as the best pathway to propagate understanding and induce inspiration in the appreciation and preservation of bios. All literature deals with bios, but a new awareness may be required to accentuate the joy we may derive from this enormous gift. No moment goes by without writing the most glorious volumes of literature, higher in calibre than any masterpiece of human creation. Every cell synthesises trillions of molecules. The words spelled by the cell, like proteins, may require as many as a thousand letters each. It suffices for one letter to be misplaced and thus cause the difference between health and disease. Order prevails in the composition of all these volumes of bios literature composed every second by cells. This composition strengthens our understanding of the ongoing process of dynamic harmony.

Theologians, artists and authors may channel their creativity and promote international cooperation on bios, this ongoing miracle, as revealed by our new perspectives provided by technology.

### **Bio-Architecture**

In fields such as architecture, the beehive, termite nests, cell membrane or other organelles, should serve as structural models for bio-architecture in the future. Bio-materials have been tested and have survived the selection of several hundred million years. For civil engineers bio-materials such

as collagen and cellulose could be useful in construction.

A new bio-material with adhesive properties extracted from some molluscs is being used to avoid oxidation and to repair ships. It will also be used in surgery for the adhesion of bones or skin and in dentistry for the permanent placement of dentures. At present, 3 million molluscs are needed for the production of 1kg of the material. But the genes responsible for the production of this material have already been isolated. They will be transferred to bacteria so as to produce this new material inexpensively and in large quantities.

The structure of biological systems as exposed through the unravelling of the microcosmos may provide new dimensions in architectural models and in city planning. In the future, "Biopolis" may resolve many of the present city problems and stimulate the search for new balanced dimensions based on bios models.

### **Bio-Arts**

Like most creators, artists seek a source of inspiration. Biology, with its stunning features and hidden mysteries, can surely serve that purpose. Throughout the centuries, art has reflected the study of nature. In this respect, bio-art is not an innovation. Already, painters have peered down the microscope to discover a completely new world of existence. The opening of the microcosmos provides unlimited sources of inspiration for artistic expressions in the future. Artists, with better understanding of biomolecular structures, may provide new dimensions for artistic expression.

Photography and music are constantly drawing inspiration from nature. But up to the present, artistic expressions have been based mainly on visual and acoustic effects. The sense of smell has not been used as extensively. How would it be if one would admire the painting of a battle field and simultaneously hear battle cries or smell gunpowder? More information on the feelings of animals, on the songs and dances of whales, may provide inspiration for the development of bio-theatre.

### **Bio-Diplomacy**

The present threats to bios are international problems and the required solutions relate to the development of educational activities for peace and international understanding. Bio-diplomacy can enhance international cooperation on environmental issues and facilitate the active seeking of solutions to problems that require prompt and decisive action. Strengthening of bio-education will have to focus on the issues and allow us to gradually crystallise proposals leading to the implementation of these goals. Bio-education may thus contribute to the solution of societal problems by bridging the gap between technological progress and societal values.

Bio-diplomacy can contribute to the development of policies for world-wide waste minimisation. Existing inadequacies and injustices can be alleviated, if proper planning by decision-makers reflects an awareness of past errors and directs growth toward the service of new priorities related to the preservation of the world's natural resources and bio-diversity, in full respect for the bio-environment. The decisive role of education raises our concern on the need to assess priorities and formulate new educational strategies.

As we enter the meta-industrial era and the next millennium and our horizons are widened, we become aware not only of the enormous beauty and diversity of bios, but also of the fragile interdependence of all forms of life. The rising awareness of our responsibility to avert the breaking in the chain of the continuity of bios will allow for positive and cohesive forces to lead us into a bright future. Therefore, it is for this reason that the bio-environment can contribute to a new perspective in international cooperation and bio-diplomacy.

### **Bio-Environment**

As long as people feel that the environment is detached from them, they will not relate it to their own life. The environment includes bios. Every plant that is destroyed, every animal that becomes extinct, every micro-organism dying from pollution, breaks the chain of the continuity of bios. It is for this reason that the bio-environment can contribute to a new perspective and places the responsibility in the hands of every one of us to promote the respect for bios. Only through international cooperation and bio-diplomacy can this obligation be implemented.

Threats to the environment are endangering bios. We cannot take any more risks as local problems cross national boundaries quickly. It is for this reason that the Biopolitics International Organisation (B.I.O.) held its first international conference on "Biopolitics - The Bio-Environment". The term "bio-environment" is meant to increase awareness of the threats imposed on all forms of bios rather than on "oikos" (house), as used in ecology. The second B.I.O. international conference on "Biopolitics - Bios in the Next Millennium", dealt mainly with the bio-environment. The third B.I.O. International Conference emphasised the need to enlist technology for global integrity through strategic planning and implemented a curriculum revision; while the fourth B.I.O. conference dealt with the need to introduce major educational reforms and launched the International University for the Bio-Environment.

The threats to bios are increasing dramatically. Urgent action is required in the following areas of global concern:

1. species are endangered by extinction. By the end of the century, one species may disappear every 20 minutes. Out of 30 million species, less than 2 million have been identified; two hundred elephants are massacred each day; 3% of the 8600 species of birds are threatened by

extinction

2. polluted waters have resulted in 80% of child deaths in Third World countries
3. rain forests host the majority of the world's species of animals and plants. Close to 11 million hectares of rain forest are destroyed yearly
4. the ozone layer of the atmosphere is under threat. Bios evolved for hundreds of millions of years under the water. It was the prolonged formation of oxygen through photosynthetic organisms that formed the ozone layer. Thanks to photosynthesis, land-life became possible. The destruction of the forests, toxic substances in the water destroying photosynthetic algae and toxic chemicals in the air, are rapidly destroying the ozone layer thus allowing ultraviolet radiation to damage genetic material. Pollution by CFC chemicals comes from aerosols, air-conditioning systems and plastic foam cartons. A hole the size of the USA has developed in the ozone layer over the Antarctic
5. soil erosion increases the rate of desertification and degradation. Billion tons of topsoil are lost from cropland each year
6. the greenhouse effect causes a gradual rise in temperature resulting in sea-level rise thereby endangering many cities
7. acid rain causes extensive damage to forests and historical monuments
8. nuclear waste increases the risk of rising radiation levels in the environment

The chain of life must be preserved at all costs, for once it is broken, the wheel of the environment may stop turning:

#### Wheel of the Environment

Out of radiant light and energy  
arise new forms  
orderly connections  
and communications blossom

Out of molecular attractions  
in a primordial soup  
sprout origins of life

Despite recapitulation  
new dimensions lead to variety  
the wheel of the environment leads  
to evolution

Is this a game of choices  
of unlimited combinations  
or an ordered pathway  
in the crossroads of infinity?

(Agni Vlavianos-Arvanitis, Oscillations, 1983)

#### **Bio-Education**

We are all aware of the need to assess values and methods of our educational systems. The immense technological progress has introduced a series of dynamic changes in society and education. The conquest of the moon and the achievement of our technological goals, made many decision makers wonder whether the pendulum of progress was not swinging too fast. We need to focus our attention on bios problems. These require even more careful handling than scientific problems. Educational institutions today have again a very active and delicate role to play in our modern society. Maybe the role is to change the angry youth into a happy one and to change the divided world into a friendly, united globe.

After all, we have conquered space and if we look at our planet from a spaceship, it looks beautiful and united. We cannot explain why people have set up lines as national boundaries, speak different languages, need to have different educational systems. Even though technology has freed us from our borders and enabled us to leave our planet and our atmosphere, we still have not progressed enough to see our role, not only in terms of village, town, city or country, but our role as members of this globe which need not be seen as privileged or underprivileged, developed or underdeveloped. Bios provides a unifying force where humans may co-exist in harmony with animals and plants.

Technology has provided an expansion in every field of human endeavour. Continuous innovation and development, as well as fluidity in the structure of society due to changing social goals, cause difficulties in identifying priorities and maintaining proper educational perspectives. Economy serves individual needs and ascertains the future requirements for society. While people today are becoming interested in growth, there is a rising awareness of the importance of the quality of life. Education may act as a catalyst and help resolve national and international problems by allowing the assimilation of progress and expansion into the building of a harmonious respect for all forms of life.

Studies in biopolitics will lead to an innovative approach to educational systems and pedagogical methods. Close collaboration and open communication channels may establish links at both national and international levels. Groups can work together and promote interdisciplinary



approaches with relevance to methodology. In order to review the present status of education at all levels, bio-education needs to be encouraged.

There is an urgent need to incorporate the values of appreciation and better understanding of bios at all levels of education. The effort will be to incorporate the progress of the biological sciences in fields such as theology, philosophy, diplomacy, economics, law, media, business etc. since technology may be viewed as the revelation of the truth and a pathway leading to a better future.

The decisive role of education raises our concern on the assessment of needs and choice of priorities leading to the formulation of educational strategies. Social needs are becoming pressing and communication media expand the awareness of existing threats to bios.

Present educational philosophy seems closer to classical ideals than to present realities. International educational programmes are now in the process of being implemented. Specialists exploring such programmes can provide feasibility studies and can begin to implement such policies in the very near future. The propagation of knowledge obtained through mass media, the press, radio, television, satellites, assists in overcoming underdevelopment and thus contributes to the quantitative and qualitative educational development throughout the world.

Satellites may be used for the simultaneous education of all people in order to promote a better understanding of bios. Information on animals, plants, bacteria and the structure of the cell, nutrition, environment, health and disease, may lead to the realisation of the harmony of life and the greater respect of this fragile, unique gift we possess. A worldwide educational campaign would assure the preservation of bios and a revision of curriculum will certainly provide a perspective of hope for the next millennium.

The outline of a bios curriculum will encourage specific action and foster activities providing a dynamic balance between the old and the new by making gradual transitions based on continuous revision and improvement.

While setting the long-range philosophy of bio-education, immediate changes are needed to be incorporated in pre-school, primary, secondary, university and post-university education. This bio-syllabus will outline a curriculum and encourage specific action towards: the media - for newspapers to incorporate a daily bios column and satellite stations to initiate a worldwide education campaign on bios; universities - to incorporate new dimensions and new values as a central core in the curriculum; elementary and high school education; community action; decision-makers sensitisation.

There is a popular saying that the "best school is society". Therefore, the ideal educational system adapts to societal needs. Since society is flexible and dynamic, educational systems have to be continuously revised. By the time proposals and studies are implemented they tend to be already outdated. The more man understands his possession of the most unique gift of the universe, bios, the more successful he will be in reducing waste in education, in fulfilling the needs of the community, the country or the world.

We are at the threshold of a new millennium, a time when mistakes of the past can be replaced and positive action for the future can make global peace, good health and respect for bios a reality. The participation of every one of us is needed for the construction of this tower of hope and vision. A tower that may allow light and brightness to prevail over confusion and anxiety.

The timely support of dedicated people will implement these ideals and arrest the destruction of the environment which is occurring at such a rapid pace. Institutions and individuals are requested to participate in this campaign. The flexible structure of the International University for the Bio-Environment allows for immediate changes in the attitude of people throughout the world by creating an awareness of existing threats and raising the respect and understanding of bios.

## **Conclusion**

Consider the human body, an example of perfection and startling beauty of coordination, which, through differentiation, originated from one fertilized egg with one genetic code that expressed itself in so many millions of different ways, resulting in an interdependence of the parts that tie together into a harmonious unity. One species of man exists and in the same way we need to understand that destruction or suffering by people in any part of the world is harming the one body of humanity. If we fully understand that all human beings belong to the genus and species homo sapiens we will have to consider the global society as one body, where billions of cells are all interdependent in a harmonious unity. But the gene expression of the same code has caused differentiation. It is the differences in language and traditions that enrich our globe, our culture. If a part is injured, the whole body is harmed due to the interdependence.

Nevertheless, it is not only the human family that exemplifies the joy we should derive by discovering all this variety. The unity with all forms of life, whether microorganism, plant, animal, or human, gives us a body of bios. Over millions of years, a great variety of living systems have evolved. In the tree of life, no two leaves are alike. But all forms of life, microorganisms, plants and animals, with their patterns of genetic coding provide differentiation and richness in varieties, but also a unity that constitutes the body of bios. Cutting a tree in the Amazon is harming the lungs of the body of bios. Our interdependence is further revealed by technology but there is a time gap between our knowledge of the dangers and our action plans. We are on the threshold of a new millennium. Unless we realise that human arrogance is forcing us into a torrential stream of destruction of bios, every moment we are impoverished by the extinction of plant and animal species. Is this our goal and idea? Are we to call the

destruction of the bio-environment the implementation of our technological progress?

Bios has evolved in hundreds of millions of years. If we consider the evolution of bios as a 24 hour day, the appearance of human beings is realised during the last few minutes. Let us hope that our presence will not lead to midnight but to the dawn of hope, since technology offers the expansion of human potential. A new vision is required for the next millennium, which represents only a few seconds in terms of the evolution of bios. We possess the knowledge to provide abundant nourishment to all the children of the world and to heal our the wounds inflicted on the bio-environment.

In conclusion, one realises that man possesses the option for alternative futures. The rapid rate of technological advancement provides the ascending ladder of knowledge and the linking bridge between the present and the future. Biopolitics will serve as the ideal pathway leading to the fulfillment of peace and the revelation of harmony.

#### Harmony

With wings of the soul  
I touch the golden waves of infinity  
around, heavenly beauty like light  
sparkles rays with colours of flowers  
whispers the soil, awakens the earth  
not like a mother, just like a daughter  
of the cycle of wear  
and the infinite of the eternal  
the melody of the universe  
is surrounded by the rhythm of harmony

(Agni Vlavianos-Arvanitis, 1984)

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