Creating a society of joy and hope - the B.I.O. vision

Eradicating poverty, protecting bios, enforcing partnerships, supporting education, improving health and quality of life, building a civic society

To strengthen our response to environmental challenges, a unifying vision is essential. The Johannesburg Summit proved the inexcusable absence of this vision and the problems that such an absence causes. To be effective in responding to environmental challenges, governments, the public sector, civil society, business, and the academic world need to unite their efforts in a global appreciation of bios. As environmental solutions are long-term goals, it is important to build public awareness with staying power. The goal is not only to change attitudes, but also to motivate and empower people everywhere to act in defence of the environment.

Bio-education for all

Education has no higher purpose than helping us to lead fulfilling and responsible lives. In today's rapidly changing world of increasing global interdependence, it is essential for education to provide the knowledge and tools necessary for the development of conscientious environmental citizens who can be trusted to take actions to ensure a quality life for all. Our very future depends upon our respect for bios and the choices we will make to protect this precious gift.

To promote this vision, B.I.O. launched the International University for the Bio-Environment (I.U.B.E.) in 1990. Rather than focusing on the award of degrees, the I.U.B.E. chose to free education from intra-disciplinary entrenchment by placing environmental thinking at the core of all specialties. In this endeavour satellite education that can reach every citizen on the planet is of crucial importance. We cannot allow education to remain the privilege of the few. By the time most educational programmes are implemented, they have become obsolete. Satellite education provides the opportunity for the whole world to share in the progress of knowledge, and international efforts should focus on making this education accessible everywhere.

International Court of the Environment

To improve our response to worldwide environmental harms, we must have institutional support and co-ordination to implement international environmental agreements and enhance national environmental policy making. Since 1998, B.I.O. has been active in the International Court of the Environment to promote environmental justice and the enforcement of international environmental legislation. The Permanent Court of Arbitration has taken this initiative under its wing, and the PCA Optional Rules for Arbitration of Disputes Relating to Natural Resources and/or the Environment were adopted at the extraordinary meeting of the Administrative Council on June 19, 2001.

World Referendum

As first proposed by B.I.O. in 1992, communication technology provides humanity with the unprecedented opportunity to dynamically voice its concern over environmental deterioration. A World Referendum for every citizen on the planet to volunta- rily cast a vote for the environment, would result in a global mobilisation for the reversal of destructive trends and would guarantee a brighter future. In 1999, the B.I.O. World Referendum was successfully implemented in India and Southeast Asia. It is encouraging to note that a “global on-line poll on the environment” was launched at the Johannesburg Summit, in September 2002. This demonstrates the important influence that the B.I.O. World Referendum has had on shaping sustainable development initiatives and strategies around the world.

Bio-Culture and the Olympic spirit

Green and short-term planning have resulted in a serious crisis in values. The diachronic ideals of the Olympic spirit can help society to cut the crisis and move into a new renaissance. The Olympiads should once again be periods of world peace and occasions for all citizens to celebrate the unifying concepts brought forth by the Olympic spirit. At the same time, the global community can be sensitised to the value of a harmonious co-existence as a vehicle for achieving a better quality of life.

Investing in the future

Biocentric priorities

Green Salary

To build a society of hope, new models in policy are essential. A Green Salary, in place of unemployment benefits, can help to elicit a positive feeling among the unemployed and, at the same time, contribute to the protection of the environment. Green Salary projects for the unemployed could include tree planting, city cleanup, recycling, resource recovery and other constructive activities. In the same context, businesses should be granted special tax deductions when providing opportunities for the unemployed to be involved in environmental projects.

Bank of Ideas

The vast dangers posed by damage to the environment need effective and prompt responses. In particular, quick and efficient access to information and knowledge is needed. A computerised Bank of Ideas on environmental issues can serve as a globally accessible repository of the world’s wisdom, which utilises the Internet’s communications facilities to promote environmental knowledge and, most importantly, to prevent the unnecessary and time-wasting duplication of ideas. People from all walks of life are encouraged to contribute to this endeavour. Historically, the views of the public have hardly been recorded, in marked contrast to the opinions of the famous and influential. This is an opportunity to amend this imbalance, allowing us to benefit from the insights of many. It is hoped that the Bank of Ideas will serve as a model for educational institutions who can in turn help nurture this endeavour.

Health and Quality of Life

Quality of life on a global level can only improve through concerted international efforts. The challenges are numerous, and the focus should be on how to meet the demands of changing social, economic, technical, environmental, and cultural needs. Environmental decay, a frantic pace of life, alienation, and mounting health problems are posing serious threats to the developed world. At the same time, developing countries suffer from soil and air pollution, water contamination and inadequate food production. Without proper understanding and urgent need to halt environmental deterioration, it will be impossible to counter these threats. Since modern medicine stresses prevention as superior to treatment, efforts should focus on eliminating the sources of pollution, and establishing a “healthy” and clean environment, a prerequisite for a healthy human population.

Bio-Education in new economics - new ethics

Fruitful co-operation to be launched between Rosario University and B.I.O.

The Dean and other members of the Faculty of Humanities and Arts at Rosario University in Argentina have requested B.I.O. to assist in curricular revisions in the departments of economics and social studies with a view to the incorporation of the views of Biopolitics in the departments’ workplans and academic syllabi.

After receiving the new B.I.O. CD-ROM themed “Bio-Syllabus for European Environmental Education” (see pages 14-15), Professor Francisco Parenzi, Director of the Interdisciplinary Bioethics Programme and Professor Dario Maiorana, Dean of the Faculty of Humanities and Arts at Rosario University, requested B.I.O. to assist in the development of a biocentric educational programme in Argentina, especially with regard to economics and the social sciences. It is a joy and privilege for B.I.O. to become involved in this initiative, which will contribute to the promotion of bio-education in a major region in South America. Work on the programmes and the new curricula will begin soon.

To successfully meet the demands of the new millennium, economics in the 21st century cannot repeat the mistakes of the past. Economic development at the expense of the environment is a disastrous price, threatening life on our planet. Economic strategies must become enriched with environment- al thinking and promote the environment and bio-diversity as a genuine profit for humanity.
BIO Goals

INTERNATIONAL CO-OPERATION FOR THE BETTER UNDERSTANDING AND APPRECIATION OF BIOS (LIFE) AND THE BIO-ENVIRONMENT

The environment 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, leading to a new era of bio-diplomacy.

BIO-CULTURE - BIO-ENVIRONMENT

These are two essential dimensions for building new societal values for the millennium.

PROMOTION OF BIO-EDUCATION

The International University for the Bio-Environment (I.U.B.E.) was launched to reform education worldwide by promoting biocentric curricula and satellite education.

BIO-ASSESSMENT OF TECHNOLOGY

A diachronic search for new societal values will channel technological progress in a direction that leads to a better quality of life through environmental appreciation.

INTERNATIONAL LEGISLATION ON BIOS RIGHTS

It is important to protect all forms of life by enacting rules that prevent the deterioration of the bio-environment, and ensure the fundamental right to a clean environment and to a better quality of life.

A WORLD REFERENDUM

This would allow people throughout the world to express their willingness to preserve bios on our planet.

RAISING AWARENESS OF THE RAMIFICATIONS OF THE BIOLOGICAL SCIENCES

More people would realise that progress in the biological sciences relates to their own field of interest. This acknowledgement may lead to new fields of human endeavour, such as bio-legislation, bio-medicine, bio-ethics, bio-arts, bio-linguistics, bio-economics, bio-athletics, bio-communication, bio-history, bio-education and bio-diplomacy.

ENVIRONMENTAL OLYMPICS - BIOS PRIZES

Bios Prizes should be given in every discipline and with the participation of every member of society to reward excellence in environmental protection.

CEASE-FIRE DURING THE OLYMPIC GAMES

Since the 1980’s, B.I.O. has proposed the introduction of a cease-fire during the Olympic Games, a proposal which has been adopted as a Resolution by the UN General Assembly.

PROPOSED ACTION

a bio-syllabus and new curricula for every level of education, as well as electronic and audio-visual materials on issues related to bios and the environment

a Green Salary instead of benefits for the unemployed, with the commitment to contribute to the protection of the environment

environmental action groups drawing both on the enthusiasm of the young and the experience of senior citizens, to tackle local issues

a bio-supporting economic strategy to replace destructive policies, and promote a world-wide interdisciplinary exchange of information on the appreciation of the environment and an electronic Bank of Ideas to create a rich repository of information and reflections on bios.

SPONSORS 2002

European Commission
Hellenic Ministry of Foreign Affairs
International Development Cooperation Department - Hellenic Aid
The National Bank of Greece
Kitty P. Kyriacopoulos
The Michael Marks Charitable Trust
The Hellenic Ministry of Culture
The A.G. Leventis Foundation
Alpha Bank
Action Link/Action Synergy S.A
Ioannis Vassiliou
Lonza Ltd.
George Pantelis
Hellas-on-Line
Xerox Hellas S.A.

BIO represented in 123 countries

Africa
Algeria, Benin, Botswana, Burkina Faso, Chad, Congo, Egypt, Ethiopia, Gambia, Ghana, Guinea, Ivory Coast, Kenya, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Nigeria, Senegal, Seychelles, South Africa, Sudan, Tanzania, Togo, Uganda, Zimbabwe

The Americas
Argentina, Bahamas, Barbados, Bermuda, Brazil, Canada, Chile, Colombia, Cuba, Dominican Republic, Ecuador, Guyana, Honduras, Jamaica, Mexico, Panama, Peru, USA, Uruguay, Venezuela

Asia
Armenia, Bahrain, Bangladesh, Cambodia, China and Hong Kong, Georgia, India, Indonesia, Iran, Israel, Japan, Jordan, Korea, Kuwait, Lebanon, Malaysia, Nepal, Pakistan, The Philippines, Saudi Arabia, Singapore, Sri Lanka, Syria, Thailand, United Arab Emirates, Uzbekistan

Europe
Albania, Austria, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, FYROM, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Moldova, Monaco, The Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, UK, Vatican, Yugoslavia

Oceanica
Australia, New Zealand, Papua New Guinea, Samoa, Solomon Islands

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Promoting the world's valuable mountain resources

Global responsibility for the future

United Nations Association of Singapore Celebration for United Nations Day and International Year of Mountains 2002

Professor Seong Chee Tham President of the United Nations Association of Singapore (UNAS) and distinguished B.I.O. Trustee, invited the B.I.O. President to contribute a greeting to the commemorative album prepared by the UNAS in celebration of the United Nations Day and the International Year of Mountains 2002 on October 24, 2002. Other eminent contributors included Professors Kofi Annan, Member of the Faculty of Biology at Basque University, a series of summer courses on “Bioethics and the Environment” took place in San Sebastian, Spain, on September 26-29, 2002.

Following the initiative of B.I.O., President, brought together eight specialists in education and the environment in a joint effort to inspire new moral concerns in students while focusing on a better and sustainable management of our environment. The general aims of the summer courses were to:

- Introduce a new environment for the current concepts of bioethics
- Review societal practices with the aim of creating a greater respect for the environment
- Develop environmental awareness among students with the goal of leading to a new system of values in society
- Integrate education in vocational training programmes

The B.I.O. lecturers given during the course were themed “Protecting the Bio-Environment - A Priority in Bioethics” and “Bio-Environment - Bio-Choice - Mediating the economy with the Arts in Environmental Protection.” Students and participants greatly appreciated the B.I.O. philosophy, which proved successful in promoting the need for environmental ethics in the development of every human endeavour. The lectures also stressed the importance of close cooperation between the technology and the arts in environmental protection, and emphasised that saving bio requires an all-encompassing effort with the participation of every academic discipline and every profession.

Professor Sabina Burch expressed her appreciation to the B.I.O. for their role in the realisation of similar courses in 2003.

Other lecturers included Professors Jules Bouchard, Jean-Claude Guehenno; Inaki Antiguedad, Inaki Barrena, and Jose Esquinas Aizpurua, Secretary of the Commission on Genetic Resources in Basque University; and the Food and Agriculture Organisation of the United Nations, who discussed education and moral values, bioethical dimensions in the food system, the need for a new environment in globalisation and sustainability, and ethical aspects in food and agriculture.

What emerged was a deep understanding of the need for a global concept of bioethics, concerned with environmental issues and not limited to biomedical problems. Bioethics is often accused of being developably and for developed countries, focusing on problems - decision-makers, the private sector and civil society for the benefit of the environment and ‘bios’ - life on our planet. Mountains, which provide most of the world’s fresh water and harbour some of the richest biodiversity, are valuable resources for supporting agricultural, mining, agricul-
ture and tourism are putting tremendous pressure on mountain environments, leading to widespread degradation and increased risks of forest fires, soil erosion, floods and famine. The International Year of Mountains was an initiative and an excellent opportunity to focus the world’s attention on the protection of mountain environments and the intrinsic relationship between them and our moun-
tains, we ensure our long-term security and survival. But it is not only change in attitudes, but also to moti-
vate and empower people everywhere to act in defence of the envi-
ronment.

Mountain forests - the ‘lungs’ of the body of bios - play an important role and to: evaluate terrorism as an interna-
tional conflict. The goal of the conference was to the point where it can significantly manip-
ulate public opinion, and the interplay between the media and public opinion, and the interplay between the media and the media can play in determining the future of human-
society.

Current developments in biological research and knowledge offer new insight into the building blocks and the function of life. The biological implications of biotechnology provide new possibilities for modifying plant and animal life, including human life. The projected effects on the environment are crucial and will lead to problems that could change the future of humanity.

These prospects and threats of recent biotechnological progress are also a challenge for Chris-

In an effort to promote better knowledge and understanding of the issues surrounding the public perception of terrorism, the Communications and International Relations Pro-
grams, led by the Academic Director of the Euro-

The B.I.O. President concluded: “Since its inception in 1985, B.I.O. has promoted international co-operation in envi-
ronmental protection and has sought to enrich every human venture with environmental dimensions. Our hope for the new millennium is to see a society based on buss supporting values where every individual will be involved in the race to save the environment. The Olympic Spirit and peace-time are not separate activities but are alterna-
tive in everyone’s vision of hope and peace. Mythos, culture and other time span-
ing ideals, together with a global effort in support of the envi-
ronment, can lead humanity toward a brighter future.”
HONOURS AND DISTINCTIONS
- Re-nomination for the Nobel Peace Prize
- Nomination for the J. William Fulbright Award for International Understanding
- Founding Member of the Balkan Academy of Science, New Culture and Sustainable Development
- Member of the Academic Committee of the Regional Interdisciplinary Programme for Bioethics in Latin America

B.I.O. INTERNATIONAL CONFERENCES
- "Bio-10 urgent steps beyond sustainable development," roundtable discussion in view of the upcoming Earth Summit in Johannesburg, Athens Money Show
- "Profit and Values - Bio-Environment - Bio-Culture" Bioethics at the Athens Money Show. Roundtable discussion with the participation of environmental experts and business executives
- 7th Annual Youth Bios Olympiad, St. Petersburg, Russia
- Programmes in bio-education
- B.I.O. participates as core partner in the EU Leonardo da Vinci “Bio & Environment Transnational Network" programme. Development of extensive educational material and networking in bio-education
- B.I.O. 3rd educational material translated into Romanian, Slovak, German, Italian, Portuguese and Spanish, within the framework of the EU Leonardo da Vinci “Bio-Environment and New Millennium" programme
- “Protecting the Bio-Environment: A priority in Bioethics" and "Bio-Environment Bio-Culture: Mobilising Technological and the Arts in Environmental Protection" Bioethics lectures at the summer course organised at the Universidade del Pais Vasco, Bilbao, Spain
- Working group for bio-education within the framework of the European Union programme on “Prospects for Technology and Investigation”

SEMINARS/CONFERENCES/SPECIAL EVENTS
- Lecture on “Olympic values and the bio-environment" at the Greek Language Foundation conference, Athens
- Participation in the Annual General Assembly of the Pontifical Academy for Life, The Vatican
- Opening lecture, EURO-SUSTAIN conference, Rhodes
- Lecture at the Municipality of Filotéhei, Greece
- Keynote speech at the IVth International Conference of the Foundation for Mediterranean Co-operation, Athens
- Keynote speech, 12th Conference on “Environmental protection is a Must," Alexandria, Egypt
- Keynote speech, OECD workshop on "Innovative soil plant systems for sustainable agricultural systems,” Izmir, Turkey
- Speech at the “Christian Anthropology and Bio-Technological Progress" international conference, organised by the Orthodox Academy of Crete in co-operation with the European Society for the Study of Science and Technology and the Technical University of Crete
- Contribution to the commemorative programme for United Nations Day and the International Year of Mountains, United Nations Association of Singapore
- Participation as Vice-President of the International Bioethics Society in the Society’s Biannual Scientific Committee meeting, Gijon, Spain
- Keynote speaker and Chair of the session on environmental ethics, World Bioethics Congress, Gijon Spain
- Chair of the session on Problems of Biosafety and Bioethics, conference on Biotechnology - State of the Art and Prospects of Development, Moscow, Russia
- Keynote speech at the conference on “Terrorism and the Role of the Media," University of Indianapolis, Athens Campus
- Keynote speech at the "Going Green Care Innovation 2002" international conference, Vienna, Austria

B.I.O. PUBLICATIONS
- "Bio-Syllabus for European Environmental Education” CD-ROM
- "Bio-Syllabus for European Environmental Education” 10 printed volumes on Architecture, Diploma, Economics, Energy, Ethics, History, Legislation, Technology and Tourism
- Quarterly publication of BioNews

OTHER PUBLICATIONS
- "Bioethics - Bio-Culture. International Co-operation for a Better Future.” In Bioethics and Society, published by the Regional Interdisciplinary Programme for Bioethics in Latin America, Faculty of Humanities and Arts, Rosario National University, Argentina
- "The protection of life as a primary responsibility of Christian love," Proceedings of the VIIth General Assembly of the Pontifical Academy for Life, The Vatican
- "Bio-policy - a prerequisite for sustainable agriculture," Proceedings from the OECD workshop on Innovative soil plant systems for sustainable agricultural systems, Izmir, Turkey
- "Bioethics - the bio-environment. A new vision in product development and policy" Proceedings from the Euro-Sustain 2002 conference, Greece

MEDIA COVERAGE
- International television interviews and press coverage
- Weekly B.I.O. articles in the Athenian daily "Adesmeftos" and "Aesmefuntos" newspapers
- New B.I.O. website http://www.biopolitics.gr

Ecological Protection of Planet Earth
Bio-Environment and Bio Culture

International Conference, National Palace of Culture, Sofia, Bulgaria, June 5-8, 2003

B.I.O. gladly accepted an invitation by the International Research Centre, Greece, to join the co-organisers of a major international conference to come next June in Sofia, under the auspices of the Bulgarian Ministry of the Environment and Water. Other co-organisers include: the Technical University of Sofia, Bulgaria; Democritus University of Thrace, Greece; the University of Sunderland, U.K.; the Technical University of Dresden, Germany; the University of Rio De Janeiro, Brazil; the National Observatory of Athens, Greece.

The conference will bring together leading scientists and decision-makers, who will exchange views on the latest developments in the environmental field. The conference will also include a Workshop on Energy Saving Heating & Cooling Technologies, as well as International Exhibition of Inventions and New Technologies on Alternative Energy and Water. The following issues will be addressed:

- Renewable Energy, Energy Saving and Clean Technologies (environmental design of buildings, improved construction materials, energy conservation, improved exploitation of solar energy, trends in hydropower, technologies to minimise emissions of power plants, energy saving technologies for industrial use, developments in geothermal power, biogas and wind energy)
- Water Resources (water resources management, quality and protection of aquatic systems, wastewater treatment technologies, new European directives on water, international water issues, protection and restoration of harbours and the coastal environment)

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Rio + 10 - New strategy beyond sustainability - bio-environment - bio-culture

Athens Money Show

W ithin the framework of its participation in the Athens Money Show, On May 25, 2002, B.I.O. organised a roundtable discussion themed “Rio + 10 - New Strategy Beyond Sustainable Development”. The discussion, which was chaired by the B.I.O. President, was to identify the world community's expectations of the upcoming Johannesburg Summit. Panagiotis Koutsikos, Head of Judicial and Legislative Affairs, European Commission DOXI, Panagiota Katsarou, Professor of Chemistry at Athens University, Panagiotis Kazantzopoulos, Director of the Black Sea Economic Cooperation Commissio, and George Kremlis, Professor of International Relations, European Commission DGXI; were to identify the world community's expectations of the upcoming Johannesburg Summit. Panagiotis Koutsikos, Head of Judicial and Legislative Affairs, European Commission DOXI, Panagiotis Kazantzopoulos, Director of the Black Sea Economic Cooperation Commis ...
EUROPEAN BIO-ENVIRONMENTAL

Solving environmental problems involves social, economic, ethical, political, and legal challenges. To respond to these challenges, education requires a radical shift away from intra-disciplinary entitlement and into creative and thoughtful action for the development of the highest potential of each individual, for the benefit of all on our planet.

For this purpose, B.I.O. issued a pioneering CD-ROM themed "Bio-Syllabus for European Environmental Education." This CD-Rom, developed within the framework of the International University for the Bio-Environment (I.U.R.E.), an initiative launched by B.I.O. in 1990, aims to enhance understanding and appreciation of the environment in every human endeavour.

The production and use of energy poses some important challenges to the development of environmental policy worldwide. Among the issues of greatest interest are the increasing role of renewable energy sources, the reduction of energy consumption and greenhouse gas emissions, as well as the changes in lifestyle necessary to ensure an environmentally sound and sustainable use of energy.

One of the basic goals of B.I.O. is to sensitise experts in the field of energy in turn will look for alternatives, thereby removing the "dependency" on non-renewable resources in order to significantly. Recently, the first hydrogen filling station went into operation at Munich Airport. It is fully automatic. The fuel cell bus demonstration project in Vancouver, Canada was very successful. Three buses ran for two years in normal scheduled service. A parallel project in Chicago was also successfully completed. While the buses were more or less the same, the difference was in the production. In Chicago, the tanks were filled with hydrogen gas from the production of the liquid phase within half an hour. In Vancouver, there was a unit from Stuart Energy comprising an electrolyser filling the bus tanks overnight. If the high production and storage costs of hydrogen can be overcome, it can be developed into an environmentally friendly fuel for automobiles. The fact that the automobile industry is interested in this technology and is developing prototypes is very promising.

PROSPECTS AND CONCERNS

The challenge for the renewable energy sector is to increase its proportion up to 12% by 2010. This is helpful to environmental targets, because, in general, renewable energy sources are carbon dioxide neutral.

The major disadvantage of many renewable energy sources is that the density of energy is low, as well as the power generated. This is the case for wind energy, solar energy and ocean energy.

Wind energy is also intermittent in nature, and so it is very difficult to attain a constant rate of energy supply based only on wind energy. The solution to this problem is to construct an extensive grid of engines (i.e., wind turbines, or solar collectors) to enhance productivity. However, this also increases the price of energy, which is a handicap in the competition with fossil fuels. Therefore, currently in the Netherlands, 95% of the electricity that is being used originates from coal, petroleum and natural gas power-stations. Only 5% (maximum) comes from renewable sources and 4% comes from nuclear energy.

The majority of renewable energy sources represent a direct or indirect form of solar irradiation energy. The only exceptions are geothermal energy, which comes, probably, from the radioactive sources in the centre of the Earth, and the tidal motions produced by the action of gravity and the spinning of the Earth. This reminds us of the importance of solar energy for our world.

In most cases, we are dealing with kinetic or mechanical energy carried by a moving fluid (i.e., wind, or water), or thermal energy - geothermal energy under the Earth's surface or ocean energy. This means that the technology for renewable energy is similar to the one used in fossil fuel applications, and the difficulty sometimes lies in the adaptation from one system to the other. For example, the extrapolation of kinetic energy from a moving fluid is done by means of a turbine composed by a rotor and blades turning around a hub. The turbine is connected to a generator which transforms the spinning energy of the turbine into electricity. Wind energy has been the fastest growing source of electricity generation in the world in the 1990s.

Renewable energy sources

Wind energy was the fastest growing source of electricity generation in the world in the 1990s.

Clean cars

The car industry is inter-connected with the production of hydrogen-powered vehicles, and the production of hydrogen-powered vehicles into an environmentally friendly fuel for automobiles. Recent work in this field has focused on the production and storage of hydrogen.

For the new international airport in Munich, Bavaria, which opened in May 1992, it was considered environmentally promising to supply buses, airport service vehicles, catering, aircraft tractors, waste removal trucks and passenger transport vehicles, such as minibuses, buses and airport service vehicles, to hydrogen powered vehicles. The project was undertaken in 1994 within the framework of the European Union, the target of 20% substitute fuels by 2020 will probably remain a dead letter, with out-favourable fiscal measures, regulations for their distribution by oil companies and voluntary agreements with industry.

Reneable energy, in all of its forms, is very abundant and will be available for centuries on our planet. In fact, the resource base for the renewable energies - geothermal, solar, biomass and wind - is much larger than the total resource base in coal, oil, gas, and uranium (nuclear power). This is one of its big advantages over fossil fuels.

But the major disadvantage of many renewable energy sources is that the density of energy is low, as well as the power generated. This is the case for wind energy, solar energy and ocean energy.

The wind resources above the shallow waters in the seas around Europe could theoretically provide all of Europe's electricity supplies several times over.

The wind resources above the shallow waters in the seas around Europe could theoretically provide all of Europe's electricity supplies several times over.

The history of renewable energy sources is directly connected with the economic trends of the fossil fuel market. The world community becomes more interested in renewable energy sources when oil prices escalate and loses interest once they become cheaper. This happened during the oil crisis of 1972 and with the Gulf war. At those times, research and development in renewable energy sources were strongly promoted, and funding of this research was given priority.

Also, on average, the greatest interest in renewable energy sources is shown by countries of the developed world. There are several cases where a certain well-adapted renewable energy source comes to play an important factor in energy production, such as, for example, wind energy in Denmark, and geothermal energy in Iceland (where historical background and natural resources also help). Among the issues of greatest interest are the increasing role of renewable energy sources, the reduction of energy consumption and greenhouse gas emissions, as well as the changes in lifestyle necessary to ensure an environmentally sound and sustainable use of energy.

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ADVANTAGES AND HANDICAPS

The fact that the automobile industry is inter-connected with the production of hydrogen-powered vehicles, and the production of hydrogen-powered vehicles into an environmentally friendly fuel for automobiles. Recent work in this field has focused on the production and storage of hydrogen.

For the new international airport in Munich, Bavaria, which opened in May 1992, it was considered environmentally promising to supply buses, airport service vehicles, catering, aircraft tractors, waste removal trucks and passenger transport vehicles, such as minibuses, buses and airport service vehicles, to hydrogen powered vehicles. The project was undertaken in 1994 within the framework of the European Union, the target of 20% substitute fuels by 2020 will probably remain a dead letter, with out-favourable fiscal measures, regulations for their distribution by oil companies and voluntary agreements with industry.

Energy resources are an important element in the development of human society. The consumption of energy grows as a function of increasing world population and increasing energy demands. The 29 countries of the Organisation for Economic Co-operation and Development (OECD), which includes some of the world's largest economies, such as the USA, Japan and Germany, continue to dominate global energy use. OECD nations account for more that 50% of the world's primary energy consumption, with the USA alone accounting for 25%.

Fossil fuel sources are finite and, if we take into account the growing world-energy demand, they might be close to depletion within the next 50 years, even with a small time-scale in human history. Moreover, fossil fuels are found in specific geographical locations, so they are not equally distributed among nations. This is a potential cause of conflict, leading to political instability and wars.

The oil crisis of 1972 was an economic and political imbalance, which caused the price of oil to sky-rocket and resulted in serious problems for countries depending on energy sources outside their national boundaries. This crisis, however, also boosted the search for alternative sources of energy. One alternative used in the last decades is nuclear fission. Nuclear fission supplies tremendous energy density, and its exploitation requires high technical knowledge and expensive fuels. Nuclear fusion also involves serious threats to the environment and risks of accidents. The by-products of nuclear fusion remain radioactive for many decades and must be stored very carefully. The storage of more and more radioactive wastes is difficult because of the danger of leakage. Also, in cases of accidents, the diffusion of radioactive elements into the atmosphere is a great danger for human health and the environment.

There is a need for a source of energy that is friendly to the environment, without the risk of accidents, and can be used on a large time-scale by humanity. An energy source with these properties is called renewable. In other words, renewable energy is any energy source that can be either replenished continuously or within a moderate timeframe, as a result of natural energy flows.

Renewable energy sources include solar energy - heat and electricity - bio-energy, wind power, hydropower, and geothermal power. However, the last can be expanded to include ocean energy - tidal forces, ocean heat and waves - and hydrogen energy, anew and very promising source of clean and renewable energy.

The production and use of energy poses some important challenges to the development of environmental policy worldwide. Among the issues of greatest interest are the increasing role of renewable energy sources, the reduction of energy consumption and greenhouse gas emissions, as well as the changes in lifestyle necessary to ensure an environmentally sound and sustainable use of energy.

One of the basic goals of B.I.O. is to sensitise experts in the field of energy in turn will look for alternatives, thereby removing the "dependency" on non-renewable resources in order to significantly. Recently, the first hydrogen filling station went into operation at Munich Airport. It is fully automatic. The fuel cell bus demonstration project in Vancouver, Canada was very successful. Three buses ran for two years in normal scheduled service. A parallel project in Chicago was also successfully completed. While the buses were more or less the same, the difference was in the production. In Chicago, the tanks were filled with hydrogen gas from the production of the liquid phase within half an hour. In Vancouver, there was a unit from Stuart Energy comprising an electrolyser filling the bus tanks overnight. If the high production and storage costs of hydrogen can be overcome, it can be developed into an environmentally friendly fuel for automobiles. The fact that the automobile industry is interested in this technology and is developing prototypes is very promising.
Achieve a viable world economy. In the years to come, investments in energy, both to replace existing resources and to meet increasing energy requirements, will obligate economies to arbitrate among energy options taking into account environmental concerns. The opportunity should be seized to promote an environmentally sound energy policy on a global level.

With an entire volume dedicated to clean and renewable energy, Bio-Syllabus for European Environmental Education provides the guidelines and information necessary to promote the use of clean energy sources and the implementation of programmes and policy in renewable energy.

Hydrogen - the fuel of the future

Hydrogen is the most abundant element in the universe, but is rarely found in its uncombined form on Earth. It contains the highest energy to weight ratio of all fuels, released during its combustion to give water as a by-product. However, a chemical process is first needed to produce hydrogen in its molecular form from water production. That is why it is considered more as an energy storage medium, a battery. The energy needed to obtain hydrogen is stored and then given back during combustion.

Hydrogen can be used in any application in which fossil fuels are being used today, with the sole exception of cases in which carbon is specifically required. Hydrogen can be used as a fuel in furnaces, internal combustion engines, turbines and jet engines, even more efficiently than fossil fuels, i.e., coal, petroleum and natural gas. Automobiles, buses, trains, pipelines, aeroplanes and rockets can run on hydrogen. Hydrogen can also be converted directly to electricity by fuel cells, with a variety of applications in transportation and stationary power generation. Metal hydride technologies offer a variety of applications in refrigeration, air conditioning, hydrogen storage and purification. Combustion of hydrogen with oxygen results in pure steam, which has many applications in industrial processes and space heating.

Hydrogen is also an important industrial gas and raw material in numerous industries such as computers, metallurgical, chemical, pharmaceutical and fertilizer and food industries. In the first half of the century the entire gas supply consisted of town gas, a coal gas consisting of more than 50% hydrogen. Only with the discovery of oil and natural gas reserves did the hydrogen gradually forced out of the public supply system. As recently as 1992, almost 3 billion m³ of town gas (a third of that in the former East Germany) was still in use in the private household and small industrial sector. This quantity represented about 10% of the natural gas consumption in this sector. The burning of hydrogen with air under appropriate conditions in combustion engines or gas turbines results in very low or negligible emissions. Trace hydrogen and carbon monoxide emissions, if generated at all, can only result from the combustion of motor oil in the combustion chamber of internal combustion engines.

Lessons from History

- In 1905, Albert Einstein in a publication in the journal Annalen der Physik explained the photoelectric phenomenon, considering that light is composed of discrete energy particles called photons and won the Nobel Prize in 1921 for this success.
- Opinion polls in Denmark, Germany, Holland and the UK, show that more than 70% of the population is in favour of using more wind energy in the electricity supply. People who live near wind turbines are on average more than 1.2 million buildings have solar water heating systems by 1897.
- In 1905, William J. Bailey of the Carnegie Steel Company, invented a collector with an insulated box and copper coils.
- The rationing of copper during the Second World War sent the solar water heating market into a sharp decline.
- During the 1970s, in response to the OPEC oil embargo, a number of incentives were established to promote solar energy.
- The Gulf war of 1990 sparked interest in non-fossil fuel energy alternatives. International markets for solar energy took off in the mid 1990s.
- The mid 1990s, tax credits and incentives had mostly disappeared, but today's industry represents the few strong survivors and, in the USA, more than 1.2 million buildings have solar water heating systems, and there are 250,000 solar heated swimming pools.
INACHUS RIVER

The name Inachus is believed to have a Cre- tan origin. Several rivers were named Inachus including a river in Argolis commonly known today as the Panotia. Its origin is on Mount Lyco- ceum and its mouth in the Argolic Gulf. A rapid torrent during winter, it dries up during the summer. In the year 1990, the word of Inachus was introduced into the city, and Inachus was the first woman who made sacrifices in honor of the deity. According to another myth, when the god of the sea, Poseidon, competed against Hera to see who would rule of the Argos, Inachus was one of the other river-judges to dry up in the summer. After this incident, the worship of Hera was introduced into the city, and Inachus was the first woman who made sacrifices in honor of the deity.

OMNIA MOUNTAIN

N omia, the name of an Arcadian nymph, is the same name as a mountain range along the border between the provinces of Arcadia, Elis, and Messenia, south of Mount Lyceum and north of the plain of Argos. The highest mount in this group is Tetrassos, which is about 1,388m, and today the range is known as Tettassos. In antiqu- ity, in the area around Lyceum in Arca- dia was near the mountain. A name of Apollo, Lycius, can be traced here. Nomii was the general name of the gods who protected agriculture and crops. According to a legend, the daughters of Persephone were abducted by the god Hermes and brought to the underworld. Her son, Pluto, was so angry that he killed the gods. In this way, Persephone was reunited with her husband, Pluto, and gave birth to his son, Charon. The name of this mountain was then changed to Tetrassos, which means “four gates.”

MOUNT OLYMPUS

M ount Olympus, the tallest mountain in Greece at 2,973m, was the home of the Olympian gods. Its south side forms a boundary with Thes- saly, a region located in the central part of the country. It is the home of Zeus, who was known as a metaphor for the summit of the moun- tain, which was perpetually cov- ered with snow. The titan Cronus, along with his wife, Demeter, goddess of agriculture, learned that the king of the underworld, Hades, had abducted his daughter, Persephone, and brought her to the underworld. To save his daughter, Zeus fought against Cronus and the ruling Titans. Known as the Titanomachia, this battle lasted for ten years. Eventually, the gods were victorious, and the Titans were overcome and hurled below to Tartar- us. The victorious Olympian gods remained atop Mount Olympus.

Later, the gods of Mount Olympus were threaten- ed by Zeus and the gods, including the twelve Olympian gods, who were divided into three groups: the gods of the sky, the gods of the earth, and the gods of the underworld. The gods of Mount Olympus were believed to have the power to control the weather and the seasons, and they were considered to be the protectors of the gods and goddesses of the underworld.

Today, Mount Olympus is a popular destination for hikers and climbers, who come to the mountain to experience the beauty of the natural landscape and to learn about the history and mythology of the area.

Persephone was a daughter of Zeus and Hera, and she was kidnapped by Pluto, god of the underworld. She was kept in the underworld for six months of the year, and during this time, the fields of the earth would not grow. To bring Persephone back to the world, her mother, Demeter, would lower herself into the underworld and bring her back. When Persephone returned to the world, the crops would grow again. This annual cycle was a symbol of life and death, and the story of Persephone became a symbol of the natural cycle of growth and decay.

The mountain was named Inachus after the nymph Inachus, who was said to have given birth to the river Inachus. According to legend, Inachus was the first woman to make sacrifices in honor of the deity. The mountain was later named Nomia after the nymph Nomia, who was said to have given birth to the river Nomia. The mountain was called Mount Olympus, after the god Zeus, who was said to have created the mountain as a place for the gods to live.

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children, and Aphrodite secretly loved Ares, the god of war. When Mars attacked Phoebus Hephaestus was away, they would meet in his house. But Helius, the sun god who sees everything, alerted Aph-rodite, who by trickery trapped the two lovers in bed and exposed them to the mockery of the other gods. When Hermes and Apollo saw how Hephaestus had tricked Aphrodite and Ares in the act of love and displayed them for all the immortals to see, Apollo asked Hermes how he would like to deal with the immortals in such an embarrassing position. The lighthearted Hermes replied that he would suffer thrice the bindings if only he could share the bed of Aphrodite!

Apollo and Hermes

Apollo was the god of prophecy, musical and artistic inspiration, archery, and healing. Although one of the great gods of Mount Olympus, Apollo is often described as being dependent on his father Zeus as the source of all the powers he possessed. Hermes, the son of Zeus and Maia, acted as herald of the gods and a deity of wealth, trade, and travelers. He was the most cunning of all the gods. Before he was even a day old, Hermes escaped his cradle and traveled to Pieria, where he saw the renowned herds of Apollo. He decided to steal them and take them back to his native Arcadia. He divided the stolen animals into twelve parts and offered them to the twelve great gods of Mount Olympus and had them look back without discovering their tracks. When Apollo discovered the theft, he promptly confronted Hermes. Maia was perplexed at Apollo’s accusation against her son, but Apollo brought Hermes to Zeus, who ruled that he return the stolen cattle to their rightful owner. Hermes began to play a lyre, had the cattle return to the barn, and inconsiderately returned the cattle to the sea. This trick won Hermes recognition as a god. Dionysus, the god of wine and song, was a late arrival on Mount Olympus. After establishing his divinity throughout the world, he led his mother, Semele, out of the underworld Hades, named her Thymo ("flag queen"), and ascended with her to Mount Olympus.

The lesser deities

Pen, a son of Hermes, was the god of poetry, musicians, and bards. He was born with horns, hooves, a tail and a furry body. He appears as a shepherd and as a newborn boy caused his mother, the nymph Dri-ope, to run away in fear. He was later taken to Mount Olympus, where all the gods were delighted with his appearance. Dionysus was born in Arcadia, dwelt in groves, wandered on the moun- tains and in the valleys, and amused himself with the antics of the beasts of the nymphs. He was fond of music and invented the syrinx, or shepherd’s pipe, which he played in a mas- terly manner.

Hermes is said to have carried the newborn Heracles to Mount Olympus and placed him at Hera’s breast while she was asleep. He then placed him aside in fury upon waking up, and the milk created the Milky Way. Hera continued to persecute Heracles for many years thereafter. Eventually, Heracles sacrificed himself, became immortal, and ascended to Mount Olympus. There, he married the then-queen of Zeus and Hera. Hebe had the honor of being appointed as the gods’ cupbearer, pouring and bringing them wine. He was also a goddess of parabola or forgiveness; freed prisoners would hang their chains in the sacred grove of her sanctuary at Piatius.

The Muses

The nine Muses were daughters of Zeus and Mnemosyne, the Titan goddess of memory, and each had mastered a particular art: Calliope, epic poetry; Clio, history; Euterpe, lyric poetry; Melpomene, tragedy; Terpsichore, choral song and dance; Erato, love poetry; Polyhymnia, sacred poetry; Thalia, comedy, Urania, astronomy. The Muses acquired their skills from their leader, Apollo. Goddesses of singing, art, and science, the Muses seemed to come and go on Mount Olympus as they pleased. They were often found entertaining the gods while Apollo strung his lyre. They also liked to haunt Helicon Mount. Humans often implored the Muses to grant them good signing voices.

Astera, sister of Leto and another beloved of Zeus, was an inhabitant of Mount Olympus. In order to escape Zeus’ persistent advances, she first metamorphosed into a quail and then turned herself into a sea. Later, she turned into the island of Asteria ("starry sky"), or Ortigia, an island that later became known as Delos. Atea, a daughter of Erin, goddess of discord, was an ancient deity who led both gods and mortal warriors in battle and incite and inconsiderately let the gods have much suffering. At the invitation of Zeus and Apollo, Homer brought Helen to Zeus, who ruled that he return the stolen cattle to their rightful owner. Hermes began to play a lyre, had the cattle return to the barn, and inconsiderately returned the cattle to the sea. This trick won Hermes recognition as a god. Dionysus, the god of wine and song, was a late arrival on Mount Olympus. After establishing his divinity throughout the world, he led his mother, Semele, out of the underworld Hades, named her Thymo ("flag queen"), and ascended with her to Mount Olympus.

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Full text of the Universal Commitment for the Dignity of the Human Being:

**Observing that:**

- Human dignity, as an attribute or value which is unique to human beings and from which other values and fundamental rights follow, is recognised or is alluded to in international documents such as:
  - the Universal Declaration on Human Rights (UN, 10.12.1948)
  - the Convention for the Protection of Human Rights and Fundamental Freedoms (4.11.1950)
  - the Social Charter of Europe (18.10.1999)
  - the International Agreement on Civil and Political Rights (16.12.1966)
  - the Convention on Children’s Rights (20.11.1989)

**Observing moreover:**

- the Universal Declaration on the Human Genome and Human Rights (UNESCO, 4.4.1997)
- the Declarations, Agreements or Protocols that followed the Summits of Rio (June 1992), Kyoto (December 1997), Montreal (January 2000) and Johannesburg (September 2002)
- or any other such documents whose principles have been embodied, in general, by the constitutions and the legal and juridical ordaining of democratic nations, as well as:
  - the Universal Declaration on the Human Genome and Human Rights (UNESCO, 11.11.2000)
  - the Bioethics Declaration of Gion (First World Conference on Bioethics, SIBI, 24.6.2000)
  - the Bioethics Declaration of Caracas (First Inter-American Conference on Bioethics 9.2.2001)

**Full dignity of the human being is a fundamental right for each and every individual - a birthright and a present right:**

In spite of this fact, in far too many places in the world such norms or principles are still restricted or even deliberately violated because neither the dignity of the human being nor the rights that follow from it are recognised in their full extent.

**Millions of people are suffering from hunger, poverty, lack of drinking water and proper living facilities, from diseases (AIDS being the most dramatic example), from indigence due to poverty and scarcity of essential goods or needs - all of them evils that could be easily and readily overcome - conditions that are turning individuals into fully dependent beings or are leading them to extermination and death while the affluent society - the smallest share of the world’s population - are enjoying wealth with abundance and even squander global natural resources.

Nature, biodiversity and the environment are undergoing an increasingly alarming decline with the progressive reduction of green areas, the extermination of animal species, the accumulation of waste and garbage in continental and maritime areas, the degradation of soil and ground water resources because of global pollution levels, regardless of the fact that these are habitats, resources and spiritual resorts which are essential to human beings.

Violence, be it physical, moral, technical or social, is irrational behaviour which is anti-cultural and contrary to the dignity of human beings.

Wars and armed conflicts, terrorism, political or religious persecution, forced emigration, aggression to cultural diversity and most particularly that of indigenous peoples, racism, xenophobia, social exclusion, exploitation and abuse of women and children, the abandonment of the elderly, the egoistic economic interests and the abuse of scientific and technological superiority, make evident the many violent and daily acts that affect all layers and strata of human life: acts that are increasing in number and intensity, often carried out with total impunity.

**Affirming that individual and collective dignity is fiction if we:**

- Fail to prevent that millions of disfavoured people go on suffering from famine, chronic malnutrition and lack of drinking water.
- Consent to the suffering of millions because of poverty-related diseases and scarcity of food and drinking water or because they live below the standards for a healthy living and have no access to essential health care services.
- Fail to promote the notion that everyone is entitled to access to education, fairly distributed labour and information on issues of their concern.
- Fail to avoid discrimination of persons and peoples and social exclusion, abandonment of the elderly and aggrcssion to cultural groups, their identities and their vital surroundings.
- Tolerate, or in any way foster, racism, xenophobia, ideological, religious, political, cultural persecution, or forced emigration.
- Fail to halt environmental degradation, the decline of natural resources and the arbitrary extinction of species (biodiversity).
- Fail to humanise science and technology so that they serve the general interest of humanity, and most particularly the interest of the most disfavoured.
- Continue to resort to weapons or terror to resolve our differences instead of building bridges of tolerance and constructive communication.

**Believing that:**

- Only with respect and the effective exercising of individual and collective human dignity everywhere on the planet can peaceful living, democracy, pluralism, equality, freedom, security, privacy, brotherhood, cultural diversity and the conservation of nature, be achieved and can be finally established as natural rights we human beings are to enjoy and pass onto coming generations.
- There is an impending need to have every country in good and ready, as soon as possible, the Treaty onPhytosanitary Rights with regard to food and agriculture, as well as to promote the fair distribution of benefits.

We express our firm commitment to:

- Promote and implement behaviours that make human dignity a universally exercised asset for a peaceful living, the respect for exercise of freedom, liberties and autonomy; an asset that is to be a legacy for generations to come.
- Progress with determination towards a new world order, promoting tolerance, participation, responsibility, cooperation, equity and solidarity, so as to put an end to human miseries such as social injustice, hunger and poverty, economic mishaps, unemployment, cultural, ideological or religious oppression, illiteracy, social exclusion, armed conflicts and wars.
- Defend the right of every human being to adequate food and healthcare through the promotion of any means that will secure that right and by facilitating equity in the access to the benefits from scientific and technological achievements concerning nutrition and health care.
- Protect the environment, nature and biodiversity and focus on the prompt restoration of the damage so far inflicted upon these assets.
- Undertake the measures and implement the attitudes - be they individual, collective, social or political - that are required to make human dignity a universally exercised asset.
- Undertake the measures and implement the attitudes - be they individual, collective, social or political - that are required to make human dignity a universally exercised asset.
- Urge governments to readily implement, with no excuse whatsoever, the measures and actions that are required to make the present Commitment effective.

**THE BIO-ASSESSMENT OF TECHNOLOGY - A PATHWAY FOR BIOSAFETY AND NEW ETHICS**

**Biotechnology - State of the Art and Prospects of Development Moscow, Russia, October 14-18, 2002**
Organic agriculture is farming that is based on biological and ecological principles — hence the terms bio- logical or ecological farming which are also used to describe this production method. The goal of organic agriculture is to produce food in an ecologically balanced agri- culture system. It favours renewable resources and recycling, returning to the soil nutrients found in waste products. In the typical organic system, this is done by composting and recycling, and using the composts to improve the soil fertility and encourage biodiversity on the farm and in the wider area.

Organic agriculture defined

Organic farming respects the environment’s own systems for controlling pests and diseases, by raising crops and livestock. It also begins to con- sider potential environmental and social impacts by eliminating the use of synthetic inputs, such as pesticides, herbicides, chemical fertilisers, growth hormones, antibiotics or gene manipulation. These are replaced with site-specific management prac- tices that maintain and increase long-term soil fertility and encourage biodiversity.

The expanding demand for certified organic produce requires a procedure that corresponds to traders, retailers and consumers’ needs in terms of quality, quality and supply. Suppliers of organic products and their products follow internationally agreed upon organ- ic standards. The establish- ment of stable certification and inspection systems entails advanced legal and technical knowl- edge and organisational skills. Certification means having the farm and the farmer’s methods inspected by an organically certify- ed group to ensure that they comply with standards and guidelines on organic farming. In fact, according to the EC and Codex guidelines, the use of terms inferring that organic production methods have been adhered to make sure they meet all relevant national and inter- national requirements. If sanctions of any of the rules include instant removal of the right to claim organ- ic status for the product concerned with stricter penal- ties imposed for more serious breaches. Com- prehensive and exact record- keeping is demand- ed, including, for livestock farmers, complete records of their livestock management systems.

Organic farming and species biodiversity

Experts estimate that species are disappear- ing at the rate of 20% a year. In the next 25 years, we can expect 1.5-3 million species to become extinct. Conversion to organic farming is considered the first step towards a medium to large-scale production of crops that does not only produce crops but also protects species diversity. Long term research projects have gathered solid evi- dence that organic systems are beneficial to bio- diversity. These benefits have been recognised by organisations concerned with the conservation of individual species or habitats, which are increas- ingly turning to organic management regimes on farmed areas. Where farms and commercial forests are managed along organic guidelines a philosophy of cycles is adopted. Diverse combi- nations of plants and animals optimise nutrient and energy cycling for agricultural production.

For the compilation of this document informa- tion was used from the European Commission website on Agriculture, from the Twenty-Second FAO Regional Conference for Europe on Food Safety and Food Quality as Affected by Organic Farm- ing, from Organic Agriculture World-wide 2002 by Yussefi M. and Miller H. published by Biofach and from the High-Level Pan-European Confer- ence on Agriculture and Biodiversity.

Organic agriculture-wide 2002

In March 2000 the European Commission intro- duced a logo bearing the words “Farming - EC Control System” [Regulation (EEC) No 2092/91] to be used on a voluntary basis by pro- ducers whose systems and products have been found on inspection to satisfy EU regulations. Consumers buying products bearing this logo can be confident that:

- at least 95% of the product’s ingredients have been organically produced
- the product complies with the rule of the offi- cial inspection scheme
- the product has come from the direct pro- ducer or processor in a sealed pack
- the product bears the name of the producer, the preparer or vendor and the name or code of the inspection body.

Organic food is a growing business with good long-term prospects. Despite the height- ened attention that organic agriculture has attract- ed during the last decade, it still only accounts for a small proportion of overall agricultural land. In 1999 BIOFAICH / Oekowelt Gmbh commis- sioned Stiftung Oekologie & Entwicklung (SOEL, Founda- tion Ecology & Agriculture) to compile statistical data and general information on organic agriculture world- wide. IFOAM, the Interna- tional Federation of Organ- ic Agriculture Movements collaborated in this project. In February 2002, the results were revised and the statistic- al material was up-dated. According to this report, the total organically managed area is more than 17 million hectares worldwide. Australia holds the highest percentage, with 7.7 million hectares, followed by Argentina (2.8 million hectares) and Italy (more than 1 million hectares). In the European Union (EU), in twelve accession countries (Bulgaria, Estonia, Latvia, Lithuania, Malta, Poland, Romania, Slovenia, Slovakia, Czech Republic, Hungary, Cyprus), the EFTA coun- tries (Iceland, Liechtenstein, Norway, Switzerland) and Bosnia-Herzegovina, Croatia and Yugoslavia 4.3 million hectares are under organic manage- ment, which coincide to almost 2% of the total agricultural land in Europe. In North America, growth rates have been overwhelming. SOL esti- mates that more than 1.3 million hectares are presently organically managed there and future prospects look very bright.

On the other hand in Asia, organic farming has not yet received a lot of attention. Most coun- tries no precise figures are available, but it may be prem- ained that no country has yet reached 1% of its total agricultural production. The total organic land area in Asia is now almost 10000 hectares. In many Latin American countries the organic land area reaches almost 0.5 %, and starting from a low level, growth rates are remarkable. For Africa not a large amount of data is available, but at the IFOAM trade conference in October 1999, it was estimated that organic farming is expand- ing at a sufficient rate. An important factor for growth in Africa is the demand for organic prod- ucts in the developed countries. Another impor- tance is the maintenance and building of soil fertility on land threatened by degradation and erosion.

The EC organic logo

In order to regulate food, it is necessary that objec- tive parameters are established according to which regulatory decisions can be made. Hence the need for food quality and safety standards, guide- lines and recom- mendations.

The first regula- tion on organic farm- ing (Regulation EEC No 2092/91) was drawn up in 1991 and, since its implemen- tation in 1992, many farms across the European continent have been certified to organic production methods. Where farmers wish to claim official recognition of their organic status, the certification period is a minimum of two years before sowing annual crops and three years in the case of peri-

Regulation of organic food

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Organic - Agriculture - Regulations

Labelling

Today’s consumers are increasingly calling for access to information on how their food is being produced and are looking for reassurance that due care with regard to safety and quality has been exercised at each step in the process.

The FAO Committee on Agriculture has recog- nised that demand for organic products has created new export opportunities for the devel- oping countries. At the 22nd FAO Regional Confer- ence For Europe on organic farming and food quality “export of organic products from developing countries is crucial” the FAO Committee on Agriculture has recog- nised the need for food quality and safety standards, guide- lines and recommen-

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The development of agriculture

Food is produced in places far removed from the areas where hungry people live. Moreover, the poor cannot afford to buy these surplus foods.

A growing population

The world’s population is expected to increase from approximately 6 billion people today to 9 billion by the year 2050. Most of the growth is occurring in the developing world, where the urban population increased from about 300 million in 1950 to 1.7 billion today. In Latin America, the population of cities such as Mexico City, Bogota, Sao Paulo and Managua tripled or quadrupled from 1950 to 1980. The fastest growing country today is Africa. Nairobi, Dar es Salaam, Kinshasa and Lagos have grown by seven-fold. At the same time, we are seeing a more urban population. By 2050, half of the world’s population will be living in cities. Developed countries will have more elderly populations due to a reduction in their birth rates, while developing areas will see younger populations which typically migrate to cities or other countries in search of a better life. These demographic trends will mean that the developed world will have more elderly, fewer workers and increased health care needs; developing countries will have more mouths to feed and a shrinking supply of labour for agriculture.

The Green Revolution

Agriculture has made great strides in increasing production and yield in recent years through the so-called Green Revolution, i.e. use of fertilisers and pesticides, increased use of irrigation, and improved crop varieties. Over the last thirty years, the per capita increase in production in the world’s three major cereals crops has been as follows: corn, up 73%; rice, up 20%; and wheat, up 15%. These gains have been accompanied by decreases in price, to the benefit of the world’s consumers, especially the poor. In the past 25 years, global food prices declined by 40%, in real terms.

The greatest productivity gains have occurred in North America, Australia and Europe, which normally produce more than is required by their populations and are the source of food aid.

Soils and water

A rapidly increasing world population, combined with economic growth, is placing increasing pressure on existing agricultural lands. To avoid further food shortages, was much attention on ensuring that the quality of agricultural soils in the world is declining. Nearly 40% of the world’s agricultural land is seriously degraded as a result of soil erosion or nutrient depletion. Protecting agricultural soils needs the attention of national governments and international aid agencies to prevent soil degradation from endangering the world’s food production.

Nearly 40% of the world’s agricultural land is seriously degraded as a result of soil erosion or nutrient depletion.

The challenges ahead

To sum up, agricultural lands are being threatened on all sides by erosion, desertification and urbanisation. Water supplies are subject to competing demands from growing populations and the threat of contamination. The use of chemicals for fertiliser and control of pests is being made possible by agribusiness rather than environmental quality. The production of genetically modified crops offers the promise of increased production at lower costs, but it remains controversial. Hunger, environmental degradation and water supply are inter-related global problems. The world community has erected too many barriers to feed its people without causing irreparable damage to the natural environment. Global, regional and national agricultural management will require improved policy coordination and better tools, including improved data collection methods and analytical capability. The United Nations is leading the way through the programs of the World Health Organization, Food and Agriculture Organization, World Food Program and other agencies. The European Union has adopted a Common Agricultural Policy (CAP) which seeks to ensure a fair standard of living for all those who are engaged in agriculture, to increase production in order to provide an adequate supply of food for the population and to encourage the modernisation of agriculture. The benefits of this policy are the transfer of proceeds to the rest of the economy and the release of manpower that is needed in other sectors within an environmentally friendly framework. Agricultural policy may be relevant to areas such as Africa, a continent in the midst of a food crisis.
The situation in Europe

Europe is facing a severe problem of soil degradation due to soil sealing, soil erosion, slope stability problems, contamination and acidification. According to the United Nations Environment Programme and the European Environment Agency, soil problems in parts of eastern and southern Europe are so severe that the soils are losing their ability to support human and natural communities. Desertification is even occurring in some areas. An underlying cause has been economic development. Covering of the soil by urban development is a major concern. In Germany, for example, the average loss of land in 1997 was 120 hectares per day. Urbanisation is also a problem in the Mediterranean countries, where the development of tourism is rapidly consuming coastal lands. Wind and water erosion are serious problems in southern Europe due to harsh climate, deep slopes, a thin vegetative cover, and poor agricultural practices such as overgrazing. Soil contamination is concentrated around existing and former industrial and military sites. The soil resource does not enjoy the same level of policy protection that is given to air and water resources. A European policy on soil is urgently needed as a basis for legislation and systems for monitoring and managing soil resources.

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Erosion

Soil erosion is a natural process that occurs virtually everywhere. Small particles of the soil are detached by the water or the wind and are deposited elsewhere. When erosion occurs at an accelerated rate, it becomes a matter of concern, particularly to agriculture. If the top layer of soil, known as the humus or topsoil, is eroded away, the soil loses its productivity. Soil erosion on agricultural lands is determined by the rainfall intensity, the tendency of the soil to erode, the presence of slopes and vegetation, and the use of conservation measures by the farmer. Erosion from rainfall is greater from high-intensity storms of short duration, although longer lasting rainstorms can also cause the removal of a significant amount of topsoil. Wind erosion is influenced by similar factors to those controlling water erosion. Wind speed and duration have a direct effect on the extent of wind erosion. Windbreaks such as trees and shrubs can serve to curtail wind erosion, while ground cover in the form of vegetation or crop residue also restrains erosion. Wind erosion not only depletes the productivity of soils, but it can also damage crops.

Impact on water quality

Erosion not only causes loss of valuable topsoil; it also pollutes the water, clouding the water and choking aquatic life. It destroys fish spawning grounds and degrades recreational water quality. Excess pesticides and fertilizers can be transported along with the eroded soils, contaminating downstream water supplies. In addition, silt from erosion accumulates in channels, reducing their capacity and increasing the threat of flooding. Water pollution from agriculture is per- haps the most difficult type to control as it occurs over a wide area, varies according to climate and soil characteristics, and the agricultural practices of the individual farmer: the choice of crops, the extent of application of fertilizers and pesticides, and land management practices.

Soil quality

Recent trends in soil quality are disturbing. According to a study by the International Food Policy Research Institute, nearly 40% of the world’s agricultural land has been seriously degraded as a result of soil erosion or nutrient depletion. This degradation has significantly impacted the agricultural productivity of about 16% of the world’s agricultural lands. The degradation has been especially pronounced in the developing world, precisely the areas in which it is most needed. In Central America, almost 75% of the cropland is seriously degraded. In the Philippines, about one quarter of all cropland has been degraded by improper use of pesticides and fertilizers.

Controlling soil erosion

Soil erosion control measures include tillage and cropping practices, retention of grassed areas and crop residue, and windbreaks. While practices are beneficial in controlling soil erosion, they may also have higher costs or cause the reduction of productive lands.

Soil contamination

Soil contamination is another type of soil degradation. It can result from agricultural activity, industrial activity, mining, disposal of solid wastes, or military activities. High levels of contamination can render land completely unfit for agricultural use. For many years, industrial enterprises disposed of hazardous materials on the land or in the water without regard to their long-term effects on the environment. Many industrialized countries are now trying to deal with the legacy of this activity. In the European Union, 30,000 sites have been identified or potentially contaminated. As many as 15 million sites may have been contaminated, the bulk of which have not been identified due to a paucity of data.

A major source of agricultural soil contamination is the misapplication of inorganic nitrogen, phosphate, or potassium-based fertilizers by farmers. Another source is pesticides, which have come into extensive use over the last 50 years to control a wide range of pests on farm crops. They tend to bind tightly to the soil, most often in the surface layer, are persistent in the environment and may be present in the soil long after they have been applied. Residues of a number of pesticides can be found in soils at levels that may pose a human health risk. A number of dangerous hazardous materials have been banned in many parts of the world, yet others have been developed to take their place. Heavy metals, salts, and petroleum products can also contaminate soils. Water from rainfall can wash contamination from an area containing hazardous substances, such as fertilizers and pesticides, and deposit them in the soil it flows over. Many of the contaminants that pollute the air and water find their way into the soil. These include emissions from motor vehicles, such as lead, and chemicals from manufacturing plants. Rain and snow can deposit airborne particles or gases on the soil. Acid rain is the deposition on the soil of acids resulting from the generation of electricity, industrial activity, or the operation of motor vehicles. Fluorine from some converted nitric acid and sulfuric acid.

Treating contaminated soils

Contaminated sites can be treated, although this is often a capital-intensive process. Once a contaminated site is identified, a careful analysis and plan of action should be prepared to determine the best treatment approach. Treatment may entail excavation and removal of the contaminated soil; flushing the contaminated soil with water, chemical solvents, or air; destroying contaminants by incineration; encouraging natural organisms in the soil to break them down; or adding material to the soil to prevent the contaminants from spreading. After the treatment has been applied, the soils should be monitored for a period of time to determine the effectiveness of the treatment. Due to the large number of contaminated sites in the industrialised countries, a number of low-cost, cleanup technologies are being developed.
I would like to thank you for the CD-Rom you have sent to me and, at the same time, congratulate you for this great piece of work. It is a very useful tool in education, making everyone aware of environmental ethics around the world. I will sure- ly forward the second copy of the CD-Rom to the Ministry of Environment of the Republic of Indonesia. Ambassador F.X. Lopes da Cruz, Indonesia

The Bio-Syllabus CD-Rom is marvellous and precious. My very best wishes. Professor Giovanni Conso, President Emeritus, Constitutional Court, Italy

I wish to thank you very much for sending me the Bio-Syllabus CD-Rom, which is a testimony of your commitment to the field of Biopolitics. Congratulations for this endeavour. Professor Eleonora Barbieri Masini, Faculty of Social Sciences, Gregorian University, Rome, Italy

Thank you very much for having sent the Embassy the Bio- Syllabus CD-Rom, which is a very useful educational tool for the students of our university. We will use it in the class of bioethics and environmental ethics. The content of the CD-Rom is in excellent taste and reflects your philosophy. Professor Kiyoshi Aoki, Life Science Institute, Sophia University, Tokyo, Japan

While thanking you for providing the CD-Rom, we found it to be most interesting, the Embassy wishes to inform you that it has forwarded one copy to the Ministry of Home Affairs and the Embassy in Malta and kept another copy at the Embassy. Seeing that this CD-Rom would also be of interest to the students at the Mediterranean Academy of Diplomatic Studies at the University of Malta, it would be appreciated if you could kindly send the Embassy another copy for the Academy. Ambassador Fionna J. Formosa, Malta

I browsed through the B.I.O. CD-Rom and I wish to con- grate you on your excellent work. There is a wealth of information on all fields of the environment and life on our planet. And all this information is presented in a very inter- esting and readable way. We need a lot of time to get to know all publications and I will be very inter- esting and useful for us. We have set up a new master’s course in the field of environmental protection titled "Technology of Environmental Protection". The matters discussed in the CD-Rom will be very interesting and necessary for the work of my colleagues in the environmental technol- ogy and management laboratory. We are going to place the B.I.O. CD-Rom at the disposal of the library at the Techni- cal University. We pleased to welcome you to work with us in the future in the field of environmental protection and sustain- able development. Professor Luben Trankov, Head, Envi- ronmental Technology and Management Laboratory, Technical University Sofia, Bulgaria

I could learn a lot from the vision promoted by the B.I.O. CD-Rom, so I like it very much. Professor Li Kangmin, Asian Pacific Regional Research and Training Centre for Integrated Fish Farming, Wuxi, China

Thank you for the wonderful CD-Rom. It is really very use- ful as an overview of all topics in Biopolitics and environ- mental issues. Professor Jaroslav Siskalas, Member of the Academy of Sciences, Czech Republic

Let me express our gratitude for your highly fruitful CD-Rom and for ten years of work you put on this project and express our sincere gratitude and admire your efforts in the field of environmental policy on our planet. Such an environmental encyclopedia needs a lot of work, but you are highly qualified for such fruitful works. We are all highly grateful for this gift. Dear colleague, please do your best and continue these activities in addition to the responsibilities of B.I.O. Your work is a highlight in the efforts to conserve bio-hist on our planet. Professor Ahmed Hamad, President’s Advisor for Environ- mental Affairs, Assuit University, Egypt

Congratulations for your successful CD-Rom. Lence Kur- ciev, Ministry of Environment and Physical Planning, FYROM

Thank you for sending me the CD-Rom "Bio-Syllabus for European Environmental Education" by the Biopolitics Inter- national Organisation (B.I.O.), with teaching modules in a number of important topics. I am sharing it with a number of interested colleagues in FAO. Let me take the opportuni- ty to express, once more, my admiration for your dedication and commitment towards a more equitable world for present and future generations. I thoroughly agree with you on the importance of an "all-encompassing bio-education." Jose T. Esquinas-Alcazar, Secretary, Commission on Genetic Resources for Food and Agriculture, Food and Agricul- ture Organisation of the United Nations

His Serene Highness Prince Albert thanks you for keeping him informed of your activities and for sending him the CD- Rom on "bio-education” that you have just issued and which is a good way to give a sense of responsibility towards our environment to every citizen. With His Highness’ best wishes for all your efforts to preserve the bio-environment. Mireille Viale, Secretary to ISH Prince Albert of Monaco

Thank you very much for the Bio-Syllabus CD. Congratulations for the excellent piece of work. It will make the work of B.I.O. many more steps forward. Professor Tham Seong Chee, Pres- ident, United Nations Association of Singapore

We would like to thank you very much for the Bio-Syllabus CD and for Bio-News. These are very valuable materi- als for us. Teresa Davidova, Slovak Environmental Agen- cy, Bratislava

Thank you very much for the CD-Rom on ten teaching mod- ules. Congratulations! Excellent work done. Useful and very progressive. Dr. Julius Oslunj, Institute of Landscape Ecol- ogy, Slovak Academy of Sciences

We are very glad to confirm receipt of your CD-Rom with teaching modules on important environmental issues. Thank you very much for both the CD and all your efforts in the area. We hope that they will be accepted with understanding by many people—primarily those who are the most competent and can help us to "awaken," feel responsible and seek an ethical and environmentally friendly society. Dr. Dagmar Kudelova, Institute of Forest Ecology, Slovak Academy of Sciences

I found the B.I.O. CD-Rom excellent and very useful. Pro- fessor Marta Salomona Boras, Department of Zoology, Basque University, Spain

Thank you for sending the CD-Rom "Bio-Syllabus for Euro- pean Environmental Education” that you have edited. I find it very interesting and important. Professor Carlos Mario Romero Casabona, BBVA Foundation, Spain

Thank you very much for the CD-Rom "Bio-Syllabus for European Environmental Education" that you have sent me. Professor Santiago Grisolia, Valencia Foundation for Advanced Studies, Spain

We would like to thank you very much for your serious efforts related to one of the most important matters facing our globe,
which is the environment. It is our great pleasure to establish a fruitful co-operation with your organisation in the field of the environment. Again, we thank you for your efforts and for the precious CD-ROM. Dr. Mohamad Rukieh, Head of the Administrative Board, Director General, General Organisation of Remote Sensing (GORS), Syria

Thank you for the CD-ROM you sent me. I note with appreciation the efforts your organisation has put into issues of the environment. We will do our best to ensure that Johannesburg becomes a success. Dr. Kezimbra Miyingo, Minister of State for the Environment, Uganda

I received the CD. Very impressive!!!! I like it!!! Professor Don Huisjing, The Centre for Clean Products and Clean Technologies at the University of Tennessee, USA

Thank you once more for your B.I.O. publications and the CD-ROM. It was very interesting and useful for our country. Dr. Khokhlova Lida, Director, Department of Nature Protection of the Republic of Uzbekistan

I studied the B.I.O. publications, the Russian books, the CD-ROM and other materials with great interest and became convinced, once again, of the necessity of opening a Biopolitics branch in Uzbek. Professor Yusuf Shadiemov, President of the O.N.A. International Fund of Ecology and Health, Uzbekistan

It was a great pleasure to receive the content-rich disk with the plans and suggestions embracing all branches of man's activities on earth. I salute you for your immense investment in time and energy, to push ahead the ideas concerning our responsibilities towards nature and ourselves. I am only sorry that such excellent ideas and activities are overshadowed by acts of terrorism and wars. One wonders why humans are often so inhuman to the environment and their fellow men. Let's hope that things will soon change and that the ideas propagated by B.I.O. will receive their honourable place on the world agenda. With best wishes for success, because your success will also be ours. Professor Lev Fishelson, Department of Zoology, Tel Aviv University, Israel

I have just received your Bio-Syllabus CD. I very much appreciate your sending me this CD, and after I have had time to have a look at it, I will send more comments. With sincerest thanks and congratulations. Dr. Stefan Ratek, Department of Molecular Genetics & Biotechnology, The Hebrew University of Jerusalem, Israel

The CD-ROM touches on many important topics, especially those of economics, ethics, health and technology. While the teaching modules emphasise an interdisciplinary approach, what seems to be lacking is a core teaching around which all these issues are concerned. Above all, the desire to move away from a more fully human development model in favor of a “bio-centric” approach is bound to create serious ethical difficulties. A re-consideration of the anthropological basis will certainly serve as a stronger foundation for your work in biopolitics. Bishop Giampaolo Crepaldi, Secretary, Pontifical Council for Justice and Peace, The Vatican

On behalf of the Moscow School of Social and Economic Sciences I would like to express our gratitude for the CD-ROM you have sent us. We use these materials within our Masters and retraining programmes on Social Work and Cultural Management. We highly appreciate the B.I.O. aims, objectives and activities. Dr. Boris Shapiro, Dean of Social Work and Social Administration, The Moscow School of Social and Economic Sciences, Russia

We would like to invite you to visit our Faculty and discuss with the group of researchers in our Faculty who have used your “Electronic Cross-Reference Library” as a suitable device of the Biopolitics programme in our region. Professor Francesco Parenti, Director, Interdisciplinary Bioethics Programme, and Professor Dario Maiorana, Dean, Faculty of Humanities and Arts, National Rosario University, Argentina

I have received your CD-ROM and have studied it carefully. I think it is an excellent product and will recommend it further to friends and colleagues who are interested in environmental and biotechnological issues. Shakel Bhatti, Senior Programme Officer, Genetic Resources, Biotechnology and Associated Traditional Knowledge Section, Global Intellectual Property Issues Division, World Intellectual Property Organisation (WIPO), Switzerland

The International University for the Bio-Environment

The International University for the Bio-Environment (I.U.B.E.) was founded by B.I.O. in 1990, to inspire needed reforms in education and to promote the environment at the core of every discipline. The I.U.B.E. is committed to working directly and in partnership with educators and decision-makers around the world to address important social, economic and environmental challenges. The I.U.B.E. also promotes projects to raise the standards of education and training, and initiatives to benefit the environment.

As environmental problems seem to intensify, we need to increase our efforts to understand and identify the crisis in values that has lead to the severe deterioration of bios. A model, global bio-education could provide not only new educational methods and techniques, but also an expanded scope in every static idea and value for the benefit of all forms of life on our planet. We cannot hear any more risks and problems rapidly cross national boundaries. The I.U.B.E. encourages co-operation in all areas of human endeavour in order to promote a unified vision directly related to bios and the environment.

The environment is life. Every plant that is destroyed, every animal that becomes extinct, every micro-organism dying from pollution, breaks the chain of the continuity of life. The environment can contribute to the development of a new perspective in society, one which places the responsibility to protect bios in the hands of every one of us.

New edition - 10 volumes on Biopolitics

Within the framework of the activities of the I.U.B.E., B.I.O. issued a pioneering educational CD-ROM titled “Bio-Syllabus for European Environmental Education” comprising ten electronic volumes on environmental subjects. The CD-ROM met with great success in 123 countries around the world (see comments on opposite page), and the material and information presented are about to be released in print as ten new volumes in one hard-bound edition.

The purpose of “Bio-Syllabus for European Environmental Education” is to function as a modular teaching implement, aimed at people of various backgrounds and interests and serving as a complete open and distance learning tool designed to enhance understanding and appreciation of environmental issues in every human endeavour. The reader is encouraged to develop an awareness of current concepts, as well as the ability to critically evaluate programs in the environmental sector. Environmental dimensions in the following topics are addressed: Architecture, Diplomacy, Economics, Ethics, Health, History, Legislation, Technology and Tourism. The goal of “Bio-Syllabus for European Environmental Education” is to:

• inspire decision-makers to place the environment at the core of all strategies and policies;
• encourage universities and other educational institutions to adopt interdisciplinary curricula and to promote environmental thinking in all academic disciplines;
• assist diplomats in influencing government policy concerning international co-operation in environmental protection;
• motivate the development of environmentally compatible economic strategies, as well as indexes to measure the environment as the true wealth of humanity;
• stimulate the implementation of existing environmental legislation on a global level;
• raise awareness of the urgency of creating an International Court of the Environment to promote environmental justice;
• engage every individual in environmental protection through innovative and creative learning and to join environmentally committed legislators, scholars, educators and business leaders in influencing governmental regulation of environmental issues around the world.

B.I.O. cross-reference library

The B.I.O. cross-reference library is a vital part of this work. Since its inception in 1985, B.I.O. has brought together leaders from diverse fields to present environmental concepts as they apply to their own area of expertise. This vastly rich material has been subdivided into topics and is now available as a comprehensive electronic reference library on the environment. The library can be accessed at http://www.biopolitics.org and is also available on CD-ROM.

Meeting the challenge of bio-education

The International University for the Bio-Environment raises awareness of the need to incorporate an appreciation of bios into all levels of education and assimilate the progress of the biological sciences in fields such as theology, philosophy, diplomacy, economics, law, media, business, etc. The University is seen as 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 choices, as well as priorities leading to the formulation of educational strategies. Social needs are becoming pressing, and the mass media expand our awareness of existing threats to bios.

Professionals of the future making decisions about the world need to be aware of the environment in all aspects of their work. Raising awareness of environmental issues is important, but it is equally important to become involved in practical education and training activities.

Many international programmes on bio-education are now in the process of being implemented. Specialists involved in such programmes can contribute to the development of new policies for environmental education. The propagation of knowledge through telecommunications, the press, radio, television, satellites, assists in overcoming underdevelopment and thus contributes to quantitative and qualitative educational development throughout the world. A revision of academic curricula with a view to a global appreciation of bios would provide a perspective of hope and harmony for the millennium.

The environment is a source of joy and inspiration for the future. Bio-life is the most precious possession on our planet. The more we understand this unique gift the more successful we will be in fulfilling the needs of the community, the country and the world.

Environmental strategies cannot be effective unless every human endeavour is involved. Environmental protection is an all-encompassing effort, comprised of short- and long-range priorities to ensure the continuation of the chain of life on our planet and to guarantee the rights of future generations.
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