

## Resolving the Environmental Crisis The Need for an International Court of the Environment



**A**s we are making our way into a new millennium, mistakes of the past can be replaced by positive action for the future. Global peace, good health and respect for the environment can become a reality, and the participation of every one of us is needed for the construction of this tower of hope and vision. A tower that may allow light and brightness to prevail over confusion and anxiety.

Changes in the attitudes of people throughout the world can be achieved by raising awareness of existing environmental threats and by eliciting an all-encompassing appreciation of bios. Institutions and individuals are therefore urgently requested to participate in the establishment of an International Court of the Environment, which will impart the leadership and vision necessary to prevent further catastrophes.

The International Court of the Environment Foundation and all its distinguished members, the Secretary General of the Permanent Court of Arbitration, Supreme Court justices, law professors and other eminent personalities are promoting an urgent initiative aiming at global environmental justice and the right to a clean environment. The Biopolitics International Organisation (B.I.O.)

is proud to be part of this effort, and we therefore held a meeting in Athens, on January 20-22, to discuss future plans and action.

This meeting was a follow-up to meetings held in the Hague, Washington D.C., New York and Rome, and we hope it will make a significant contribution towards the launching of an internationally acknowledged legal mechanism for resolving environmental disputes. B.I.O. emphasises that, rather than developing into yet another punitive institution, it is important for the International Court of the Environment to function in the spirit of arbitration and conciliation, under the auspices and guidance of the Permanent Court of Arbitration.

On behalf of the B.I.O. Board of Trustees, I would like to thank all who contributed to the realisation of this meeting and especially the sponsors who make it possible for us to pursue our goals for a brighter future.



Agni Vliavianos-Arvanitis

Tjaco van den Hout  
Secretary General, Permanent Court of Arbitration, The Netherlands

The difficulties encountered in the relationship between social interest for the protection of the environment and nature on the one hand, and economic interests on the other, are being readdressed (trade, foreign investment). New approach methods are being discussed in order to bridge the existing gap and resolve tensions. It is becoming evident that there is no existing framework for the exchange of opin-

ions, to which states, governmental agencies, non governmental agencies, multinational enterprises and individual citizens will have access, when there is a need to find solutions on matters concerning the protection and conservation of the environment.

While the process for the establishment of a new institution is under way, the Permanent Court of Arbitration with its 100-year history in resolving international disputes has recently moved in a direction that may provide it with the ability to act effectively in this field.



Francine Cousteau  
President Equipe Cousteau, France

For over fifty years Commander Cousteau shed light on the mysteries of the world's oceans and made it possible for us to discover the beauty and fragility of our planet. At the same time, he made us conscious of our responsibility to guard this precious treasure.

Today, our planet is endangered and so are the rights of future generations. In the Cousteau Foundation we believe that to safeguard the rights of future generations there is an urgent need for a globally acknowledged executive instrument with the necessary jurisdiction to implement legal regulations for air and water. We therefore ask for a global authority to be established to set standards for air and water and to ensure that they are enforced. We fully associate ourselves with the efforts of the Biopolitics International Organisation and we will join forces to see that this goal is realised.

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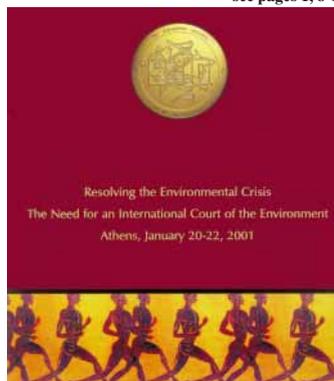
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### Need for an International Court of the Environment

**T**o raise awareness of the need for an International Court of the Environment, B.I.O. sponsored a major conference in Athens on January 20-22, 2001. The conference was attended by many prominent personalities, including diplomats, parliamentarians, business leaders and academics. The Resolutions were disseminated in 111 countries world-wide, in an attempt to promote the urgent nature of this endeavour.

B.I.O. hopes that the international community will acknowledge the necessity for a legal instrument specifically assigned with the responsibility of resolving environmental disputes. B.I.O. also wishes for the International Court of the Environment to act as a beacon of new values for a global appreciation of bios. At a time when our responsibility to save life on our planet is becoming a priority, such models of inspiration are crucial.

see pages 1, 8-10



### Paying the price or winning the Prize?

**E**conomic development at the expense of the environment is a disastrous prize. Environmental abuse is a heavy load resting on the shoulders of future generations.

Do we want to pay this price? Do we want to jeopardise our future by imperilling the gift of bios - life - the most precious possession on our planet? Is this our vision for the new millennium? Instead, let us all become involved in the race to save the environment. Let us all become Bios Prize candidates and winners.

*Let us all become involved in the race to save the environment. Let us all become Bios Prize candidates and winners.*

The Olympic Spirit can play a leading role in uniting the forces of culture and technology to instill the appreciation of the aesthetic value of life on our planet. An Olympiad of values and not merely of physical prowess must evolve.

Bios Prizes for each speciality, with the participation of every individual and profession is one of the major B.I.O. goals for the new millennium. Through a truly international and multidisciplinary environmental education, every citizen of the world can contribute to the spiritual renaissance of humanity.

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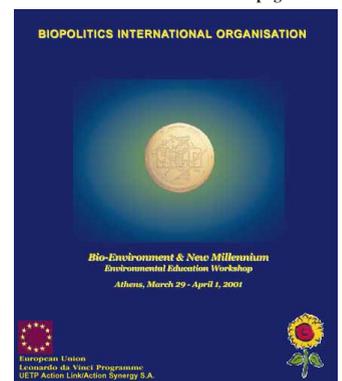
### Environmental Education Workshop

**T**o assess progress in environmental education, B.I.O. held a workshop in the framework of the dissemination activities of the European Union Leonardo da Vinci Programme. Discussion topics included:

- Why is environmental education essential?
- Defining the environment and the issues at stake.
- Scope and limits of the *Bio-Syllabus*.
- Teaching and dissemination methods. Teacher training.
- Incorporating environmental education in existing educational systems.

The workshop was attended by scholars and educators from Germany, Spain, Turkey and Greece. The Recommendation drafted upon the conclusion of the deliberations was forwarded to B.I.O. friends and members in 111 countries.

see pages 12-15



# BIO goals

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

The bio-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

Two essential dimensions for building new societal values for the millennium.

### PROMOTION OF BIO-EDUCATION

through the International University for the Bio-Environment, launched in order to reform education world-wide by promoting a biocentric curriculum for every educational level.

### BIO-ASSESSMENT OF TECHNOLOGY

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

### 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

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

### RAISING PUBLIC AWARENESS OF THE RAMIFICATIONS OF THE BIOLOGICAL SCIENCES

In order for more people to 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 AND BIOS PRIZES

The Biopolitics International Organisation has been proposing the introduction of cease-fire during the Olympic Games, a proposal which has been incorporated as a United Nations Resolution. In order to promote the bio-assessment of technology and a global bio-culture for the new millennium, B.I.O. proposes the establishment of international committees in every field of human endeavour, assigned with the responsibility to assess progress in their respective fields. Bios Prizes in every discipline will be awarded to individuals or institutions that have contributed to the preservation and appreciation of the bio-environment.

### PROPOSED ACTION

*Action is crucial in order to apply technological progress towards preserving the bio-environment. It is therefore essential to:*

- develop 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
- introduce a positive feeling of self-respect in the unemployed by paying a **Green Salary** instead of benefits, with the commitment to work for the protection of the environment
- encourage a **clearing-house** for individuals and organisations to provide, through the use of computer link-ups, a network of people wishing to cooperate on the promotion and appreciation of bios
- generate **environmental action groups** drawing both on the enthusiasm of the young and the experience of senior citizens, to tackle local issues
- encourage a **bios-supporting economic strategy** to replace destructive policies, and promote a world-wide interdisciplinary exchange of information on the appreciation of the environment
- promote the establishment of a computerised **Bank of Ideas** in which scientists, scholars and philosophers, as well as any interested party, may contribute their thoughts and create a rich repository of information and reflections on bios.

## 2001 SPONSORS

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## BIO represented in 111 countries

### Africa

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

### The Americas

Argentina, Bahamas, Barbados, Bermuda, Brazil, Canada, Chile, Colombia, Cuba, Ecuador, Guyana, Honduras, Mexico, Panama, Peru, United States, Uruguay, Venezuela

### Asia

Armenia, Bahrain, Bangladesh, Cambodia, China and Hong Kong, Georgia, India, Indonesia, Iran, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Pakistan, Philippines, Saudi Arabia, Singapore, Sri Lanka, Taiwan, Thailand

### Europe

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

### Oceania

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

## Editorial

### Pricing environmental abuse

Environmental destruction has been "cheap" because the environment was never priced. Economic development at nature's expense has been the norm rather than the exception. In a global market, where multinational corporations compete on cost cutting, the cheapest places on earth for natural resources or labour are precisely those nations which place no value on democracy, human rights or environmental protection. When it is a time of plenty, people can be trusted to exploit all they can before beginning to conserve it. And people are seldom frugal on someone else's bill. As the world is now faced with an environmental crisis of unprecedented proportion, future generations will be called upon to pay a heavy fine.

The price of environmental abuse is high. It is not a matter of money in the bank. It is a matter of jeopardising the very continuation of life on our planet. Humanity cannot "profit" from destruction. Sound environmental protection is also sound economic policy. States which put a high priority on environmental protection are states that prosper. Being at the bottom of the economic barrel goes hand in hand with environmental destruction.

Lack of care for the environment can be traced directly to the lack of political leadership. Governments show a weak character when environmental planning pits itself against the popular vote. Therefore, to reverse these negative trends, the mobilisation of every individual is needed. The concept of sustainability is expanding, but not enough. If new models are not immediately implemented, there is a danger of perpetuating and not washing away the mistakes of the past.

Business and finance all over the world are quickly orienting towards investments in environmental preservation. "Green stock" options and zero emissions goals for industry are examples of new strategies in the globally expanding investment markets. Cleaner Production strategies are focusing increasingly on the transformations necessary to implement preventive environmental management practices, and international organisations such as the European Union fund initiatives based on strict environmental specifications.

Since its inception B.I.O. has proposed a "Green Salary" in place of benefits for the unemployed, with the aim of encouraging the unemployed to get involved in environmental protection. By engaging the unemployed in environmental projects, businesses could be granted special tax cuts and other incentives promoting new job opportunities and economic growth.

But how can we encourage every citizen on the planet to become involved in environmental protection? The word "athletics" comes from the Greek term *athlos* meaning achievement, both physical and mental. The Olympic Games is a perfect opportunity to turn the world's positively focused attention to the environment. Achievements in environmental protection - in all professions and specialities - can be awarded Bios Prizes so that every individual may participate in the race to save the environment.



Dr. Agni Vlavianos-Arvanitis  
B.I.O. President and Founder



### Bio News

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## Lifestyles for the Third Millennium

### Parliamentary Assembly of the Council of Europe - Meeting in Santorini, Greece

A conference organised by the Council of Europe's Committee on the Environment and Agriculture, in co-operation with the Hellenic Parliament, will convene on the island of Santorini, Greece, from 4-6 June 2001. The conference will address initiatives aiming at sustainable development requiring not only the active support of civil society but also - and above all - major changes in our lifestyles. The radical changes which are taking place in the economic, political and information spheres, and of which the environment is only one of several elements, are challenges to our societies, which must not submit to them passively, but must find the best ways of meeting and overcoming them.

Dr. Agni Vlavianos-Arvanitis has been invited to chair a special session themed "The Environment as a Symbol of the Crisis" and will be participating in the conference deliberations along with some other eminent B.I.O. members.



## Euro-Arab Conference for the Environment

### University of Rostock, Germany, 24-26 April 2001

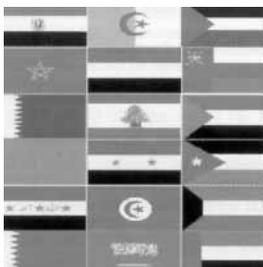
The 11th Euro-Arab conference for the environment took place in Rostock, Germany, from 24-26 April 2001, with main emphasis on the following subjects:

#### Waste management - Recycling - Utilisation Technology

Waste disposal management, waste treatment facilities, refuse and reprocessing systems, waste incineration plants, thermal processing, hazardous waste disposal, Hospital refuse, recycling systems, disintegration systems, compactors, residue avoidance and utilisation, valuable material recovery, landfill systems, container systems, composting systems, urban economics, disposal logistics, conveying and pump systems, weighing systems, etc.

#### Disposal and municipal technology

Disposal and municipal vehicles, special-purpose vehicles, machines, equipment, containers, special collection containers, plants, accessories, loading systems, shredders, custom built systems, practical use, urban waste disposal, municipal sanitation, etc.



#### Water, Sewage and canalisation systems

Water conditioning plant, water rehabilitation, distillation plants, dosing equipment, decontamination-, degasification- and sterilisation plants, purification plants, rain water utilisation facilities, measuring-, analyse and monitoring technology, water conservation, sanitary engineering, gravity separator, effluent and sludge treatment, bioreactors, biological treatment facilities, anaerobic treatment, effluent treatment and activation plants, filters, pumps, valving, tanks, clarification tanks, sewage treatment engineering, sewage treatment plants, separation systems, purification systems, canalisation construction, sewage systems, canalisation, sanitary engineering, building materials

#### Climate protection and air pollution control

Air conditioning systems, used and waste air cleansing systems, filters, compressors, pumps, flue gas cleaning facility, dust protection, measuring and laboratory equipment, protection equipment, control and monitoring facilities, emissions protection, technical building equipment, domestic technology, etc.

## Earth Day 2001

The Biopolitics International Organisation joined the "Action for Sustainable Asia Pacific 21" effort for Earth Day 2001 (ASAP21, former Earth Day Japan International Team).

Our common belief is that the feeling of being connected beyond boundaries brought about through this occasion will contribute to making the 21st century a century of environment. And it goes without saying that partnership among NPOs, NGOs and people across the globe established or reinforced through this co-operation will be a driving force to protect the environment. See B.I.O.'s website ([www.hol.gr/bio](http://www.hol.gr/bio)) "What's New" section.



**Research and development - Technology transfer**  
Innovative technology, operation processes and research results, technology transfer.

The conference was organised by the Euro-Arab Co-operation Centre, the University of Rostock, the Department of Land Management and Use and Environmental Protection, the Exhibition and Congress Company Ltd. and the German Near and Middle-East Association. It presented an international platform in which innovative and promising technology can be comprehensively conveyed in exhibitions, presentations and excursions. Representative authorities from Arab countries attended the conference with the purpose of making initial business contacts with

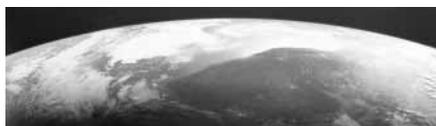


participating companies and scientific institutions. The previous 10 Euro-Arab conferences for the environment took place in Arab countries.

The global solutions for environmental problems in the Arab world are a challenge for all interested parties. Refuse, recycling and utilisation technology, water and effluent treatment,

and climate protection and air pollution control are particularly required by Arab countries and are especially asked for from European scientists and producers. The opening of the Arab markets to private and public sector engagement ensures a competitive free market economy for all technology producers.

The B.I.O. President was a keynote speaker at the opening plenary session. She discussed the importance of environmental policy in Euro-Arab co-operation and stressed that Euro-Arab co-operation based on environmental initiatives can blossom and grow within a mutually beneficial framework. Tourism, culture and the better understanding of the environment we all share can promote the development of long-term multilateral strategies among European and Arab countries. International co-operation is strengthened through cultural initiatives for the preservation of life on our planet, and these initiatives should be encouraged on a global level. A deeply rooted past can provide insight and inspiration for the future, and complement efforts in the fields of science and technology.



## Forum 2001 Foundation Gaia and Culture Symposium Tuscany, Italy

The Forum 2001 Foundation is sponsoring a symposium themed "Gaia and Culture," to be held 22-24 June 2001 at *La Fratta* in Southern Tuscany, Italy. The B.I.O. President will be one of the main speakers at the symposium.

Environmental problems in today's world are asking for profound changes in the understanding of our habitat and in the collective behaviour toward our habitat. The goal of the symposium is therefore to give answers in a scientific and cultural perspective concerning the Earth and to contribute to a better understanding of the complexities and interactions in nature, and between nature and human beings. Topics and themes include: Gaia and the sciences; the cultural implications of scientific insights; and, the philosophical and religious traditions, related to a more unifying notion of the Earth. The proceedings of the symposium will be published by VUB University Press, Brussels, as Vol. V in the series *Humanism and the Third Millennium*.

## Money Show 2001

### Athens, Greece

On the occasion of the Athens Money Show, to convene on June 9 at the Grande Bretagne Hotel, B.I.O. will be holding a panel discussion themed "Profit and the Environment," with the participation of diplomats, business leaders, scientists and educators. Speakers will discuss the environment as a priority in today's expanding investment markets.



The Athens Money Show, organised under the aegis of the German Hellenic Chamber of Commerce and Industry, is a cutting-edge international financial forum promoting new investment strategies, products and services. It is a joy and privilege for B.I.O. to be part of this initiative and to have the opportunity to address the increasing importance of environmental issues in the rapidly emerging global economy scheme.

## Euro-Arab Centre Cairo, Alexandria, Egypt

As a Member of the Board of the Euro-Arab Co-operation Centre, the B.I.O. President participated in a conference held by the Petroleum Institute in Cairo and in a Euro-Arab Co-operation Centre meeting in Alexandria, in November 2000.

In her speech at the opening ceremony of the Petroleum Institute Conference, Dr. Agni Vlavianos-Arvanitis stressed the need to intensify efforts to save non-renewable energy sources such as oil. One of the main B.I.O. goals is to sensitise specialists in the energy sector, who will in turn provide the necessary technical knowledge that will help to prevent catastrophes and to establish a sustainable global economy. In this framework, the Petroleum Institute could play a significant role in the research and application of innovative solutions.

## Coastal Ecosystems Gdynia, Poland

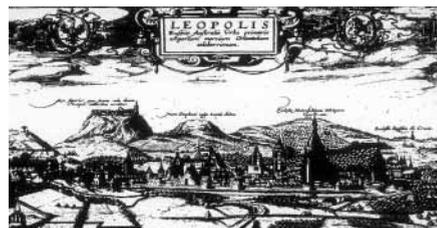
The 3rd International Symposium on "The Functioning of Coastal Ecosystems in Various Geographical Regions" will be held in Gdynia, Poland from 19 to 22 June 2001. The symposium is organised by the Institute of Oceanography and the University of Gdansk, and will offer the opportunity to present and discuss the results of case studies related to biological, chemical, geological and physical processes in the coastal zone. The B.I.O. President will be one of the main speakers.

## Urban Green Spaces Lviv, Ukraine

An international conference on "Urban Green Spaces" will convene in Lviv, Ukraine, from 3-5 October 2001. The conference is organised by the Ukrainian State University of Forestry and Wood Technology and the Ministry of Education and Science of Ukraine, with the co-operation of the Biopolitics International Organisation, the National Botanical Garden of Ukraine, the National Academy of Sciences of Ukraine and the Urboecological Centre of Elviv. The conference is chaired by Professor Konstantin Sytnik, Director of the National Academy of Sciences of Ukraine and the Institute of Botany. The B.I.O. President is one of the Co-Heads of the Conference, together with Professor T. Cherewchenko and Professor V. Kucheryaniv.

The following topics will be addressed:

- The role of botanical gardens in ornamental plants introduction
- Ancient parks: problems of restoration, conservation and reconstruction
- Gardens and squares of the historic centers of ancient cities: ecology, architecture and design
- Greening of new dwelling regions
- Urban ecological parks
- Suburban park-forests: ways of landscape management
- Problems of park biodiversity
- Problems of decorative nursery gardens



# BIO progress

## 2001

### HONOURS AND DISTINCTIONS

Re-nomination for the Nobel Peace Prize

### B.I.O. INTERNATIONAL CONFERENCES

"Resolving the Environmental Crisis. The Need for an International Court of the Environment." International conference in Athens with the participation of the Secretary General of the Permanent Court of Arbitration, supreme court justices, diplomats, business leaders and other eminent personalities

"Bios and New Millennium," conference on bio-education and the development of new curricula, Athens

Biopolitics session on "The Environment as a Symbol of the Crisis" at the Council of Europe Parliamentary Assembly conference themed "What Lifestyles for the Third Millennium"

"Profit and the Bio-environment" Biopolitics session at the Athens Money Show

Sixth Annual Youth Bios Olympiad. St. Petersburg, Russia

### SEMINARS/CONFERENCES/SPECIAL EVENTS

Keynote presentation on globalisation and the environment, at the conference sponsored by the Canellopoulos Foundation. Athens Chamber of Commerce and Industry

Keynote presentation at the conference on "Environment and the Olympic Games" sponsored by the Hellenic Society of Environmental Law, Athens

Slovak participants from the TEMPUS Mobilities EU programme visit Greece to take part in a Biopolitics clean energy and environmental administration project in co-operation with the Regional Energy Centre of the Peloponnese and Action Link/Action Synergy SA

Presentation at the Annual General Assembly of the Pontifical Academy for Life, The Vatican

Keynote presentation as Member of the Board of the Euro-Arab Co-operation Centre at the conference on "Environmental Technology and Technology Transfer" at the University of Rostock, Germany

Keynote presentation at the plenary session of the 7th European Roundtable on Cleaner Production, Lund, Sweden

Keynote presentation at the conference on "Olympic Values, Tourism and Culture," Ancient Olympia Greece

Keynote presentation and participation in the Scientific Committee of the 11th International Conference on "Environmental Protection is a Must." Alexandria, Egypt

Keynote presentation at Panteion University, Athens

Keynote presentation at the international conference on "Ecological Protection of Planet Earth." Democritus University of Thrace, Greece

Participation as Vice-President of the International Bioethics Society in the Society's Biannual Scientific Committee meeting, Gijon, Spain

Presentation at the Third International Symposium on the Functioning of Coastal Ecosystems in Various Geographical Regions. Gdynia, Poland

Keynote presentation at the OECD workshop on "Innovative soil plant systems for sustainable agriculture systems," organised by the University of Ankara, Izmir, Turkey

Keynote presentation at the "Gaia and Culture Symposium," sponsored by the Forum 2001 Foundation. Tuscany, Italy

Honorary Co-Chairmanship of the International Scientific Conference "Urban gardens and parks: past, modern and future" sponsored by the Ukrainian State University of Forestry and Wood Technology. Lviv, Ukraine

Keynote presentation at the Second National Congress on Bioethics, Oporto University, Portugal

Keynote presentation on "Conflict resolution" at the XXIII Indian Geography Congress. Sagar, India

### B.I.O. PUBLICATIONS

"Bio-Syllabus for European Environmental Education" CD-ROM (in prep.) sponsored by the European Commission

"Biopolitics - the bio-environment - Bios Olympiad," proceedings from the B.I.O. conference held in 1999 in Ancient Olympia (Greek edition, 299 pp.)

### MEDIA COVERAGE

Interviews on satellite television in several countries and numerous articles in the international press

Weekly B.I.O. articles in the Athenian daily "Adesmeftos"

Bio-economics, bio-legislation, bio-diplomacy, and bio-philosophy featured extensively on the B.I.O. web site (<http://www.hol.gr/bio>)

## 2000

### HONOURS AND DISTINCTIONS

Re-nomination for the Nobel Peace Prize, by Nobel Laureate International Physicians for the Prevention of Nuclear War

Nomination for the J. William Fullbright Award for International Understanding

Member of the Board of the Euro-Arab Co-operation Centre

Founding Member of the Balkan Academy of Science, New Culture and Sustainable Development

Europe 500 New Century Award by Barons Who's Who USA

### B.I.O. INTERNATIONAL CONFERENCES

"Bio-Environment - A New Renaissance in Business" B.I.O. conference with the participation of experts in legislation, marine protection, clean energy sources, finance and management, held within the framework of the Hellenic-Italian Chamber of Commerce's 5th Annual Conference. Holiday Inn Hotel, Athens, Greece

"Bio-Diplomacy: The Future of International Relations" B.I.O. luncheon event with keynote speeches by Ambassadors from several countries. The Athens Club, Athens, Greece

Round table discussion on "New Century - New Dimensions - Environment," at the World Conference on Bioethics organised by the International Bioethics Society (SIBI), Gijon, Spain

Fifth Youth Bios Olympiad in St. Petersburg

### BIOS PRIZES

Bios Prize awarded to Ted Turner, Atlanta, USA

### SEMINARS/CONFERENCES/SPECIAL EVENTS

"Bio-Culture - Bio-Environment - Millennium Values," keynote presentation at the millennium celebration on the island of Patmos, Greece

Biopolitics at the Pontifical Academy for Life's General Assembly, The Vatican

Participation in the seminar on "Environmental Obligations and Opportunities for Business," British Embassy, Athens

Presentation in the organisational meeting for the conference on "What Lifestyles for the Third Millennium?" Council of Europe, Paris

Biopolitics presentation in "Forum 2000" conference of the American Foundation for Greek Language and Culture, Tampa, Florida, USA

Biopolitics at the Wilton Park Conference on "Earth Summit 2002: Identifying the Agenda," Wiston House, UK

Keynote presentation at the International Centre for Bioethics Conference, International Institute for Human Rights Studies, Trieste, Italy

Opening lecture at the conference on "Environmental Protection is a Must," held by the Euro-Arab Co-operation Centre and the University of Alexandria, Egypt

B.I.O. participates as a partner in the Leonardo da Vinci European Union Project "Bio-environment and New Millennium"

Biopolitics keynote at the conference on "Tourism and Culture," Ancient Olympia, Greece

Participation in the Working Group for the establishment of an International Court for the Environment, Permanent Court of Arbitration, The Hague

Participation in the Earth Charter Launch in the presence of HM Queen Beatrix of the Netherlands, Peace Palace, The Hague

Ten-day B.I.O. lecture series on environmental management and legislation for university teachers and government employees from Eastern Europe, in the framework of the EU Tempus Programme. Academia Istropolitana Nova, Bratislava, Slovakia

Opening lecture at the Fourth Annual Conference of Arcadians Abroad, Arcadia, Greece

Plenary Session presentation at the conference Praga 2000 Natura Megapolis, organised by the Czech IUCN, Prague, Czechia

Participation in the State of the World Forum, New York, USA

Participation in the Working Group of the International Court for the Environment Foundation, New York, USA

Visit to Romania, following and invitation for co-operation in the field of public administration and training, National Agency of Civil Servants, Romania. Plans to establish projects in bio-education, bio-legislation and bio-diplomacy.

Keynote lecture "Chemical Education and Sustainable Development" conference, Mendeleev University, Moscow

"What is Globalisation's Impact on the Environment?" Keynote presentation at the Wilton Park conference on Human Rights and

Global Economic Governance: How Can We Build Equity?, Wiston House, UK

Keynote presentation at the Petroleum Institute Conference, Cairo, Egypt

Keynote presentation at the Board Meeting of the Euro-Arab Co-operation Centre, Alexandria, Egypt

Keynote presentation at the conference for the establishment of an International Court of the Environment, Italian Supreme Court, Rome

Biopolitics seminars on environmental legislation and environmental management at Academia Istropolitana Nova, in Bratislava, Slovakia within the framework of the European Union TEMPUS programme

Slovak participants from the above mentioned seminars visit Greece to take part in a Biopolitics clean energy and environmental administration project in co-operation with the Regional Energy Centre of the Peloponnese within the framework of the TEMPUS Mobilities EU programme

Keynote presentation and chairing of an event on Cultural Olympiads, with the participation of the Mayor of Athens and other personalities. The event was sponsored by the Global Federation of Ileians Abroad. Old Parliament Building, Athens, Greece

Participation in the European Union "What energy options for Europe in 2020" conference, Brussels

Keynote presentation at the Steering Committee meeting for the conference "What Lifestyles for the Third Millennium" of the Council of Europe's Parliamentary Assembly. Paris, France

### B.I.O. PUBLICATIONS

"Bio-Syllabus for European Environmental Education" CD-ROM and printed education manuals (in prep.) sponsored by the European Commission

"Bios Olympiad." Monograph by A. Vlavianos-Arvanitis (Greek edition, 111 pp.)

"Biopolitics - the bio-environment - Bios Olympiad," proceedings from the B.I.O. conference held in 1999 in Ancient Olympia (Greek edition, in press)

"Environmental Legislation, Energy and Environment, Industry and Environment" Open education manuals prepared within the framework of the European Union Leonardo da Vinci "Bio-Environment and New Millennium" project

Quarterly publication of BioNews, the official B.I.O. newspaper

"Bios Prizes in St. Petersburg - a Millennium of Bio-Culture," video release (English, Greek)

"The Kogi of Colombia - a Tradition of Safeguarding the Environment," video release (English, Greek)

"Biopolitics - the bio-environment - the biopolitical context of pluriculturality," contribution to the volume of proceedings from the conference on "The Challenges of Pluriculturality in Europe" in co-operation with Europe House Zagreb

"Protecting water resources and the bio-environment: A priority policy for the millennium," contribution to the volume of proceedings of the MEDCOAST/EMECs Joint Conference on the Coastal Environment. International EMECS Center, Japan

"Biopolitics - the bio-environment - biopolis versus megapolis: a millennium vision," contribution to the volume of proceedings and CD-ROM from the conference "Praga 2000 Natura Megapolis" of the Czech IUCN

### MEDIA COVERAGE

Keith Suter Comments on Biopolitics. Radio 2GB News Commentary, Australia. Broadcast on Friday 17th November on Radio 2GB's "Brian Wilshire Programme" at 9pm, and on the 19th November "Sunday Night Live" at 10:30pm

Interviews with ANTI TV Satellite-Pacific, broadcast in Australia, Canada and USA

Weekly B.I.O. articles in the Athenian daily "Adesmeftos"

Extensive press coverage in Spain, Russia and Japan

Bio-economics, bio-legislation, bio-diplomacy, and bio-philosophy featured on the B.I.O. Internet web site (<http://www.hol.gr/bio>)

## Racing to Save the Environment



## Biopolitics as a Solution to the Climate Change Gridlock

Commentary by Keith Suter, Consultant for Social Policy, Sydney, Australia

Broadcast on Friday 17th November 2000 on Radio 2GB's "Brian Wilshire Programme" at 9 PM, and on 19th November 2000 on "Sunday Night Live" at 10:30 PM, on the occasion of the Sixth Conference of Parties to the United Nations Framework Convention on Climate Change (COP-6) that convened November 13-25, 2000 in The Hague.

There is a major conference in The Hague in the Netherlands currently underway to discuss climate change. Australia is represented at the conference. There is widespread concern about whether the world can get agreement on international action to protect the environment generally because the problems themselves seem to be getting worse.

International action to save the environment requires more than just environment ministers meeting together at international conferences. There has to be a dramatic change in how humankind sees its responsibilities towards protecting the environment, with a fresh emphasis on the role

of humankind as stewards of the environment.

One organisation that has been doing this basic work is the Biopolitics International Organisation (B.I.O.). This is a non-profit, non-governmental organisation, founded in Athens in 1985. The founder and president is Dr. Agni Vlavianos-Arvanitis, one of the most energetic and inspirational non-governmental environmental activists on the current world scene. I met Dr. Vlavianos-Arvanitis at a Club of Rome conference a few years ago, where she spoke very well on the need for greater international co-operation to protect the environment.

Her organisation is aiming at a fundamental change in human values. The term "biopolitics" is based on the idea that biology links all the people around the world. When it comes to living

on this planet, there is more uniting humankind than dividing it. The organisation has a vast network of contacts in 111 countries.

The Biopolitics International Organisation is mobilising humanity in a number of different ways. It is necessary to act in a variety of ways because people are to be won over to environmental protection in a variety of ways. There is no one magic key to saving the environment. Similarly, there are many ways in which a person can become involved in this grand campaign. It is necessary to do whatever you can, wherever you can and in whatever way you can.

One theme in the organisation's work is to have changes in the school curriculum to ensure a greater emphasis on the environment. Some progress has been made on this in Australia.

*If war is too important to be left to generals, then the environment is too important to be left to environment ministers.*

Second, the organisation is campaigning for a "Green Salary" by which unemployed people will be paid to work on projects that save the environment. Once again, some progress has been made in this area in Australia via the "Work for the Dole" schemes because some of the projects are concerned with protecting the environment, such as bush regeneration.

Third, the organisation is calling for the development of economic strategies that will more effectively mobilise economics in the interests of saving the environment. There is still much more to be done in this area - and I am not too confident about an optimistic outcome from the climate change conference now underway in The Hague. Hence the need for organisations like the Biopolitics International Organisation to create a groundswell of public opinion in favour of major changes to protect the environment.

If war is too important to be left to generals, then the environment is too important to be left to environment ministers.

## European Roundtable on Cleaner Production 2001

Lund, Sweden

The Seventh European Roundtable on Cleaner Production (ERCP) was held from 2-4 May 2001 in Lund, Sweden. The 7th ERCP was a continuation of the ERCP series, the first of which was held in Graz in 1994. Following this initiative, successive, annual Roundtables were held in Rotterdam, Kalundborg, Oslo, Lisbon and Budapest.

The central theme of the 7th ERCP was "Sustainable Production and Consumption Systems - Co-operation for Change" addressing approximately 30 sub-themes related to the integration of cleaner production, cleaner products, environmental efficiency and regional sustainable development.

The aim of Cleaner Production strategies is to continuously improve environmental efficiency through minimising:

- environmental impacts in all societal activities;
- environmental impacts throughout the entire life-cycle of products;
- the quantity and toxicity of all wastes at their sources;
- the use of hazardous raw materials and processes, non-renewable resources, water and energy.

The European Roundtable on Cleaner Production focuses on fostering dialogue and co-operation among all interested parties, nationally and internationally and involves trade and industry, agriculture, forestry, fishery and tourism,

governments at central, regional and local level, educational and research institutions, consultants, financial institutions, trade unions, and consumer- and environmental organisations (NGOs). It seeks to motivate and encourage all stakeholders to continually and efficiently work on new initiatives and ideas of cleaner production to promote the transition to sustainable societies and to shift the environmental protection paradigm from end-of-pipe pollution controls to Pol-



lution Prevention/Cleaner Production approaches. It also sets new and revised targets for further developments towards sustainability and stimulates decision-makers, at all levels, to focus their environmental protection efforts and initiatives on holistic and preventative environmental protection approaches.

Another ERCP initiative is to bring together stakeholders from Europe and throughout the world at Roundtables hosted by different countries. The Roundtables give priority to interactive sessions and workshops designed to provide optimal opportunity to exchange knowledge

and experiences, develop new project-ideas and new networks and to find new co-operation partners. ERCP places special emphasis on involving people from countries not currently active in the field of Cleaner Production and co-operates with similar groups in other regions of the world and other national and international organisations with similar goals and objectives.

The planners of the 7th ERCP were looking forward to an innovative Roundtable in the his-



torical city of Lund and welcomed all to interactively share their visions, strategies and experiences on "Sustainable Production and Consumption Systems." The overall goals of the 7th ERCP were to:

- challenge participants and stimulate debate regarding the progress and limitations of present practices for achieving sustainable development;
- develop recommendations for improving co-operation and accelerating the transition to sustainable societies;
- provide an opportunity for hands-on learning and active information sharing.

The 7th ERCP was designed to be especially beneficial for corporate managers, governmental officials, local government representatives, especially those involved in Local Agenda 21 and sustainable development programs, environmental and management consultants, university educators and researchers involved in work on sustainable development and cleaner products/production, environmental science and environmental management students, representatives from non-governmental environmental organisation and environmental journalists.

Following an invitation by Professor Don Huisingsh, Chairperson of the 7th ERCP, the B.I.O. President participated in the conference as a plenary session keynote speaker, addressing the subject of "Bio-Policy in Cleaner Production-New Societal Structure-New Thinking."

She emphasised that environmental thinking and structural changes in society are essential if cleaner production strategies are to succeed. To alleviate regional conflicts and reconcile environmental harmony and economic growth, new policies in industry, energy, transport, agriculture and regional development must be implemented. In order to bring results, however, these policies have to be based on a framework of environmental ethics urging a reassessment of current assumptions with a view to a global appreciation of bios. Society needs to mobilise every one of its elements and strive for a better future.

## Olympic Games and the Environment

The Hellenic Environmental Law Society sponsored a major conference on "Olympic Games and the Environment" at the Ministry of Foreign Affairs, on February 1 and 2, 2001. The goal of the conference, which was attended by many prominent personalities such as the Minister of Environment and Public Works, the Minister of Culture, the Mayor of Athens and the President of the Athens 2004 Olympic Games Organising Committee, was to serve as a platform for the exchange of ideas for a sustainable and environmentally-sound staging of the Olympic Games.

The B.I.O. President participated in the conference and was invited by the Chairman to deliver the closing remarks. She stressed that environmental law is an important institutional tool for policy and action, and essential to the development of the Olympic Games' infrastructure. However, the Olympic Games are also a brilliant opportunity to use the world's positively focused attention to promote environmental issues. Achieving excellence in sports alone cannot provide the long-term vision necessary for humanity to exit the present crisis in values. An Olympiad of values and not merely of physical prowess must evolve, encompassing every field of human endeavour. As proposed by B.I.O. since 1985, Bios Prizes can be awarded on the occasion of the Olympic Games to people from all walks of life who contribute to environmental protection. Lets not waste the opportunities presented to us and lets all work together to preserve and appreciate the environment and life on our planet.



The Hellenic Environmental Law Society was established in 1999 with the aim of developing, disseminating and promoting environmental law and environmental policy in Greece. The Society's President, George Kremilis, who chaired the conference, is also the Head of Judicial and Legislative Affairs at the European Commission DG XI, and a distinguished B.I.O. supporter and friend.

## Environmental Protection is a "Must"

Alexandria, Egypt

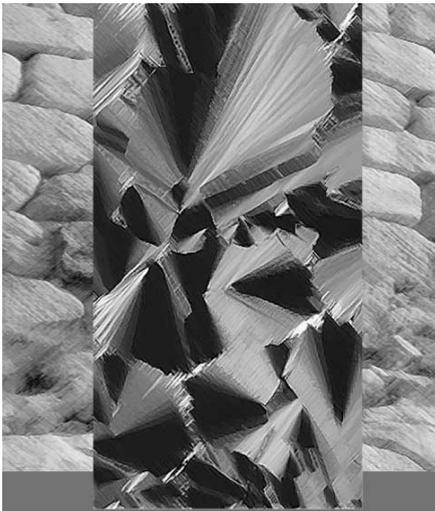
The 11th International Conference on "Environmental Protection is a Must" will take place in Alexandria, Egypt, 8-10 May 2001. The conference is organised by Alexandria University, the Euro-Arab Co-operation Centre (V.E.A) and the International Scientists Association (I.S.A.), under the auspices of the Professor Mofid Shehab, Minister of High Education and Scientific Research, and Professor Mohamed Nasr El-Deen Damer, President of Alexandria University.

The B.I.O. President, Member of the Scientific Committee of the conference, will be one of the keynote speakers in the opening session. The conference will also be attended by the Egyptian Minister of Petroleum, the Syrian Minister of Petroleum, the Governor of Alexandria and the Governor of Damascus.

Speakers and participants will address the following topics: Air and soil pollution; Fresh



water and marine pollution; Hospital waste disposal; Environmental management, environmental planning and impact assessment; Waste recycling in industry and agriculture; Environmental engineering; Environmental information and education; Environmental laws and applications; Tourism and the environment; Energy and the environment; Small enterprise and the environment; Peace and the environment; Gender and the environment; Environment and climate.



## Bio-Architecture

**B**ioclimatic architecture is a way of designing buildings and manipulating the environment within buildings by working with natural forces around the building rather than against them. Thus it concerns itself with climate as a major contextual generator, and with benign environments using minimal energy as its target. It aims to protect and enhance the environment and life, and is developing on many different levels from rethinking basic concepts about our need for shelter and the function of the "city" in our lives to developing recycled or sustainable building materials.

Perhaps the most important challenge facing the world today is the impact that the projected population growth will have on urban centres. Currently two billion of the world's population live in cities but by the year 2050 that figure will grow to around six billion with most of the expansion taking place in the so-called developing countries. The environmental, as well as the social and economic, impact of this explosion is daunting.

Important issues will have to be faced on how to cope with this increase in urban populations. How do we design urban environments to accommodate them? How do we improve the social and economic conditions of the growing urban population without jeopardising the life systems and the environment?

There are 1,2 billion people in the world today without adequate shelter. The design, construction and maintenance of traditional buildings in developed countries have a tremendous impact on the environment and natural resources. Statistics from the USA show that residential and commercial buildings account for over 1/3 of all the energy consumed and 2/3 of all electricity. In addition, buildings are a major source of pollution causing urban air problems and climate changes. Many of the main pollutants damaging urban air quality come from buildings. (49% of the sulphur dioxide, and 10% of particle emissions) In the USA, buildings also produce 35% of the carbon dioxide, chief among pollutants affecting the climate.

The impact of traditional building on the environment and natural resources is enormous. However, the ideal of designing and building structures that are environmentally friendly has become fairly widespread throughout the community of architects and builders in developed nations. In many areas there is the necessity of complying with new regulations and standards aimed at protecting the environment. In addition, there are an increasing number of incentives for putting up buildings with more efficient energy consumption and that reduce the negative impacts on natural resources by using recycled or sustainable materials. While these vary around the world, there is awareness that our need for shelter must not jeopardise the environment.

There is growing interest in "Green" building practices, which offer an opportunity to create environmentally sound and resource-efficient buildings by using an integrated approach to design. "Green" buildings promote resource conservation through energy efficiency, renewable energy, and water conservation features. They take into consideration the environmental impact of the building and minimise waste. Other goals are to "create" a healthy and comfortable environment, reduce operation and maintenance costs, and address issues such as historical preservation, access to public transportation and other community infrastructure systems. The entire life cycle of the building and its components is

# BIO-ARCHITECTURE

**M**any of the European city problems could be resolved by paying greater attention to the environment. Architecture and urban planning based on environmental preservation are the only option for maintaining quality of life and preventing lasting environmental damage. Pollution reduction, waste minimisation and energy conservation can be furthered through environmentally-friendly urban design and construction. Awareness of these issues and information on possible opportunities existing world-wide are vital to the development of new possibilities and new scopes in restructuring urban and agricultural areas, as well as human settlements in general.

Bio-architecture links the appreciation of the environment and biodiversity with urban design and planning. Bio-architecture also promotes the use of materials and techniques which are environmentally sound, culturally sensitive and reliant on local resources and skills. A "Biopolis," as promoted by B.I.O., functions as a model for the harmonious co-evolution of humanity with the bio-environment. It is based on the application of clean energy sources (solar, wind, hydrogen, etc.), cleaner production and environmentally friendly materials, and aims at creating a self-sufficient, aesthetically pleasing urban environment with minimal waste generation and with an active participation of every member of society in the protection of bios.

In compiling this article, information from "European Commission, European Sustainable Cities," 1996 (ISBN 92-827-8259-X) was used.

considered, as well as the economic and environmental impact and performance.

As public awareness of environmental issues increases, construction developers are also beginning to see that "green building" can be profitable and a selling point. Market surveys are showing that a surprising number of potential buyers are interested and will pay the higher prices for a home that is environmentally friendly. In the last few years there has been much talk concerning environmentally responsible architecture, that is, architecture respectful of the earth's resources and its natural beauty. Unfortunately, many of the architects and designers who profess interest in the concept of sustainable architecture do not practice it in their own work for whatever reason, be it their client's lack of interest or their own lack of conviction. In fact, most architects ignore the issue altogether, preferring to regard architecture as fashion.

This is a terribly irresponsible view, because in terms of energy use and visual pollution, buildings have had an increasingly severe and damaging impact on the environment. This makes the issue of sustainable architecture not only an important consideration but also a necessary one. As for a building philosophy for national parks, which were created to conserve nature for future generations, it seems that sustainable architecture, or "integrated bioclimatic architecture," is the only logical and responsible approach.

What is integrated bioclimatic architecture? It is architecture that arises out of the landscape, with the site determining the orientation and construction of a building, not just aesthetically, but also mechanically, determining its heating, cooling, and lighting too. Thus, it is an architecture that respects nature and its resources and provides its occupants with the most comfortable and pleasing environment possible. However, this architectural approach need not be a restrictive one for imaginative practitioners. As integrated bioclimatic architecture encompasses examples of vernacular architecture, like the typical white stucco Mediterranean fishing village, as well as mimetic architecture, which draws on the materials, textures, even the plants of the surrounding landscape for its inspiration. Indeed, good integrated bioclimatic architecture should exist in harmony with the site.

### New trends in urban management

**E**nvironmental protection brings together social, economic, moral and political considerations. Urban management must take these considerations into account and incorporate the following principles:

**Environmental limits.** Uncertainty about the environmental threshold of the earth's carrying capacity requires the adoption of the precautionary principle and demand management.

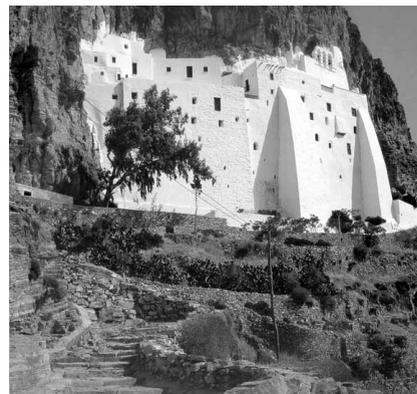
**Environmental efficiency.** Reducing the use of natural resources, increasing durability and closing resource loops will contribute to long-range environmentally compatible urban management.

**Welfare efficiency and equity.** Multiple use and social and economic diversity, as well as a fair distribution of natural resources

are key elements to be considered in urban planning.

To reconcile continuing development with environmental limits we must choose certain types of development rather than others. Efficiency has meanings beyond maximising the economic output of each human being. Human benefit is not necessarily identical to utility as measured by neo-classical economics. Quantity of goods should be replaced with quality of life. Environmental protection is closely connected to social equity.

In Europe, the European Commission's Green Paper on the



urban environment of 1990 and the Sustainable Cities Report of 1996 both promote an integrated approach to urban problems encompassing social, economic, and environmental factors. The Sustainable Cities project, started in 1993, aims at encouraging and assisting cities and towns to establish and implement local Agenda 21 or similar sustainability plans through policy reports, exchange of experience, networking and dissemination of good practices cases.

In the specific context of environmental policy, the EU is now adopting a more bottom-up approach. Better implementation in a partnership approach and the use of alter-

native instruments in environmental policy, are priorities where the urban dimension plays an important role. The "greening" of the Structural Funds has also become a central concern, as explained in the Communication on Cohesion and Environment.

### Natural building materials

**N**atural building has emerged as a response to an increasing concern for our built environment. Natural materials can provide an alternative to toxic substances which have led to widespread environmental illness. While interest has surged in the industrialised West, the ancient roots of natural building are being lost in many traditional areas. Ironically, builders in the industrialised countries are now turning to these very cultures for

solutions to their building problems. It is to be hoped that increased interest and research into vernacular building systems will increase respect for these timeless ideas in their native lands, and through diligent efforts by a number of people, many of

*To reconcile development with the environment, the European Commission's Green Paper on the Urban Environment and the Sustainable Cities Report each promote an integrated approach to urban problems.*

these techniques are indeed being revived, studied and implemented throughout the world.

As natural building and design is still in its infancy, the state of the art is in constant flux as practitioners and techniques, hitherto isolated, are identified and brought into partnership with others. Most popular natural building techniques and materials include: adobe, bamboo, compressed earth, earthen floors, light straw-clay, natural fibres, living roofs, natural plasters and finishes, paper blocks, rammed earth, straw bale construction, thatch, wattle and daub, and wood.



Coastal zone problems

The coastal zones of Europe face a range of interrelated biophysical and human problems. As a complex, dynamic natural system, the coastal zone is subject to the forces of water currents, sediment flows and frequent storms. It is also particularly vulnerable to inappropriate or excessive human uses.

Poorly planned development in environmentally fragile coastal areas can cause shoreline erosion, polluted water, noisy and crowded surroundings, and extensive loss of trees, wetlands, fish and other wildlife. Population growth reduces land availability, encouraging developers to fill in marshes, destroying fish and animal habitats. The clearing of land destroys vegetation and trees, which increases runoff and ruins the overall natural beauty of the environment. Damage to streams, marshes, and marine life results from the use of pesticides, fertilisers, toxic chemicals, and other pollutants. Storm water runoff and effluent from sewage treatment facilities also cause trouble. The large amounts of nitrogen and phosphorous that pour daily into estuaries result in algae blooms that remove oxygen from the water, sometimes producing fish kills. Development also leads to the withdrawal of large amounts of water from aquifers, which causes salt infiltration and reduces water quality.

The basic problem for coastal zones is that development is not kept within the limits of the local environmental carrying capacity. Beaches and estuaries are especially sensitive to economic development, and coastal areas all over the world are experiencing more rapid development than inland areas. Some of the most common manifestations of this problem are:

**Widespread coastal erosion**, often exacerbated by inappropriate human infrastructure (including that intended for "coastal defence") and development too close to the shoreline. Engineering works in some port areas have contributed to accelerated erosion of the adjacent shoreline because the works did not adequately account for coastal dynamics and processes. Extraction of gas is another factor that can lead to coastal erosion.

**Habitat destruction**, as a result of poorly planned building and land development, or sea exploitation. This problem is particularly significant in areas that are undergoing rapid economic expansion, such as in the countries of Central and Eastern Europe. **Loss of biodiversity**, including decline of coastal and offshore fish stocks as a result of damage to coastal spawning grounds. Regional Biodiversity Action Plans have identified up to 30 actions necessary to prevent further habitat loss and arrest species decline in certain coastal areas in the North-West European Metropolitan area.

**Contamination of soil and water resources**, as pollution from marine or on-land sources, including landfills, migrates to the coastline. In some Member States, river borne pollution derived from agricultural runoff upstream in neighbouring countries is affecting the quality of coastal waters.

**Problems of water quality and quantity** as demand exceeds supply or wastewater treatment capacity. Saltwater intrusion from overexploitation of coastal aquifers is a major problem in many parts of the Mediterranean basin. The damage to the aquifer normally results in a permanent reduction in available water resources.

In many cases, these physical and biological problems have led to, or compounded, the human problems facing the coastal zones as the number and intensity of human uses increase, namely:

**Unemployment and social instability** resulting from the decline of traditional or environmentally-compatible sectors, such as small scale coastal fisheries. In many areas, professional coastal fishing is experiencing difficulties in remaining competitive.

**Competition between users for resources.** Low availability of sites for aquaculture as a result of space allocation for other uses

# COASTAL ZONES

Most people believe that beaches or seacoasts are sandy areas with salty water intended for swimming and other recreational activities. The majority of us do not realise that beaches are important ecosystems brimming with numerous life forms: plants, birds, microorganisms, turtles, seals, many of which are endangered species. Coastal zones are areas where land and sea meet and interact. The coastal band varies depending on the nature of the environment, the interactions of the marine and terrestrial coastal processes and the management needs. According to the UNCED, Coastal zones occupy less than 15% of the Earth's land surface, yet they accommodate more than 60% of the world's population. If this trend continues, by 2025 there could be up to 75% of the world's population residing in coastal areas. Most of the world's coastal ecosystems potentially threatened by development taking place without regard for the environment are located within northern temperate and northern equatorial zones with Europe having 86% of its coasts at either high or moderate risk. Coastal zone development which disregards the environment is not a matter to be taken lightly; it leaves the shore more vulnerable to ocean waves and currents, thus imperilling property and lives.

In compiling this article, information from "EU DG XI Regeneration Programme on Integrated Coastal Zone Management 1997-9" was used.

is a significant limiting factor on the expansion of this activity.

**Destruction of cultural heritage** and dilution of the social fabric following uncontrolled development, especially of tourism. Many of Europe's islands - from the Canary Islands to the archipelagos of Sweden and Finland - are experiencing this problem.

**Loss of property and development options**, as the coast erodes. Coastal erosion is locally perceived as the most significant threat to maintaining income in many areas that live from tourism.

**Lost opportunities for employment**, as resources are degraded. Boats are frequently treated with tributyltin (TBT), which can have a negative impact on the aquaculture industry.

**Marginalisation and emigration**, compounded by a lack of appropriate infrastructure, including year-round communications and transport networks. The inadequate road network and lack of overall development of the local economy in many coastal areas has led to out-migration, resulting in low levels of facilities that help to attract and maintain a vibrant local community.

population and as an anticipation to the impacts of climate change, such as accelerated sealevel rise. The essence of this concept is to provide more space for dynamic coastal development in the different coastal compartments (dunes, coastal sea, urban waterland, etc.) through drastically revising the water and sediment regimes and integrating the different functional uses of the coastal zone, land in water and water in land.

In Poland, by the 1991 Coastal Act, a coastal belt was established, consisting of a technical belt and a protective belt. Since 1996 effective mechanisms and co-ordinating activities have been functioning.

*The basic problem for coastal zones all over the world is that development is not kept within the limits of the local environmental carrying capacity.*

Especially in Poland, with its rapidly increasing economic development, the key issue in ICZM plans is the balance between natural dynamics and the pressure from economic and urban development.

## European strategy

The European Union Strategy for Integrated Coastal Zone Management consists of a series of concrete actions for each of the aforementioned general areas of action, based on the conclusions of a Demonstration Programme operated from 1996 to 1999 by the Directorates General for Environment, Fisheries and Regional Policy. To ensure effectiveness and efficiency, this Strategy builds as much as possible on existing instruments, programmes and resources, rather than creating new ones.

It aims to improve their use through better co-ordination, and through ensuring that they are appropriate for coastal zones. In conformity with the proportionality principle, the EU measures will not go beyond what is necessary to achieve the various objectives set.

In many cases, the actions announced may in fact not be specifically addressed to the coastal zone, but be tools to promote

*Coastal erosion is perceived as the most significant threat to maintaining income in many areas living from tourism. It leaves the shore more vulnerable to currents, thus imperilling property and lives.*

good integrated management in any territorial unit, including coastal zones. This is wholly appropriate in view of the fact that the guiding principles for good management of the coastal zones may also be usefully applied to other areas. This strategy is comprehensive and as such includes many distinct actions of differing significance. It is not, however, a shopping list of alternatives, but is conceived as a coherent package. Its implementation will require the involvement and collaboration of various different services within the European Commission and partners in other institutions.

## Regional management

In the Netherlands the concept of restoring resilience of the coastal zone was launched in 1996 during public fora of major actors/stakeholders from the governmental, business, academic and nature conservation communities. Increasing natural resilience by restoring the strength of the buffer capabilities of the coastal areas is seen as a response to the increasing pressure of urbanised

management. Finding this balance requires strong vertical and horizontal integration: co-operation between all responsible actors at different levels of government and different sectors of the economy and non-governmental organisations (NGOs). Since March 1997 three Regional ICZM consultative bodies have been installed in which representatives of all levels of government, science, industry, NGOs and landowners participate. They stimulate co-ordination of activities in the coastal zone by initiating preparation of ICZM plans within the coastal provinces.

The USA has recognised the desirability of diversity. The US Coastal Zone Management Act 1972 sets out the basic objectives of ICZM, and requires American States to draw up coastal management programmes that will meet those objectives. However, it leaves each State free to choose its own methods, and consequently each has devised its own system. There is no necessity for each coastal State to have an identical system of ICZM, provided that the methods they adopt work and are capable of operating in harmony for the benefit of the coastal zone as a whole.

Greece fully participates in all activities of the Barcelona Convention and the Mediterranean Action Plan. Recently the new amended Land Based Sources protocol was adopted by the contracting parties. This legal document in conjunction with MAP phase II is expected to play an important role in coastal management on a national and regional level. MAP phase II and its related activities are much more action oriented than MAP phase I which focused on assessment. Furthermore the area coverage of the LBS protocol has been extended to the hydrological basin of the Mediterranean encompassing the coastal zone. The application of these instruments is expected to play an important role in the sustainable development of coastal areas.

It is important to note that different coastal zone management strategies must be treated as flexible, evolving instruments, designed to cope with the specific needs of different regions and conditions. They will certainly need amendment and modification as conditions change and as understanding of the relationship between environmental policy and the status of coastal zones evolves.



# INTERNATIONAL COURT

## Resolving the Environmental Crisis The Need for an International Court of the Environment

Zappeion Hall, Athens  
Monday, January 22, 2001

### Conference Programme

#### International Court of the Environment - Need and Structure

Chairs: Tjaco van den Hout, Dr. Agni Vliavianos-Arvanitis

*Ethical framework for the protection of the bio-environment.*

#### Kitty P. Kyriacopoulos

Honorary Chairman, Silver and Baryte Ores Mining Co., Greece

*The need for the International Court of the Environment.*

#### Judge Amedeo Postiglione

Director, International Court of the Environment Foundation, Italy

*International Court of the Environment. Yes, but in which form?*

#### Professor Giovanni Conso

President Emeritus, Constitutional Court, Italy

*Environmental aspects of the Charter of the International Criminal Court*

#### Dr. Ivano Iai

Constitutional Court, Italy

#### Business and Finance

Chairs: Professor Udo Simonis, George Kremis

*Contribution of an industry to environmental protection.*

#### Anthony Gortzis

President, World Federation of Advertisers and Director of Corporate and Media Relations, Unilever, Greece

*Financing and the bio-environment.*

#### Constantine Kanonis

President, Hellenic-Russian Chamber of Commerce, Greece

*Environmental responsibilities of business. International co-operation.*

#### Panayotis Koutsikos

President, ERGO SA, Greece

#### International Proposals

Chairs: Professor Alfred Rest, John Sarmas

*War in Yugoslavia - Environmental Impact on South-East Europe*

#### John Hartland

Counsellor and Special Advisor to the Secretary General of the Parliamentary Assembly, Council of Europe

*Protecting the Environment - A challenge on three levels*

#### Maggi Mikaelsson

Member of Parliament, Sweden

*Our efforts to install a Global Environmental Organisation within the United Nations system.*

#### Professor Udo Simonis

Science Centre Berlin, Germany

*Democratic procedures as a value system in environmental protection.*

#### Dr. Harilaos Harakas

Legal Counsel, Federation of Greek Industries, Greece

#### Access to Environmental Justice. Methods of Implementation

Chairs: Anthony Gortzis, Dr. Ivano Iai

*The European Commission view on access to environmental justice.*

#### George Kremis

Head, Judicial and Legislative Affairs European Commission DG XI

*Peaceful settlement of transnational environmental conflicts. Why not by an International Court of the Environment?*

#### Professor Alfred Rest

Senior Academic Counsellor, University of Koln, Germany

*International Court of the Environment. Structure and content recommendations.*

#### John Sarmas

Member of the National Court of Audits, Greece

#### Global Governance

Chairs: Dr. Agni Vliavianos-Arvanitis

*Responsibilities and penalties. The necessity for a world executive instrument for air and water.*

#### Francine Cousteau

President, Equipe Cousteau, France

*Resolving environmental disputes. From negotiation to adjudication*

#### Tjaco van den Hout

Secretary General, Permanent Court of Arbitration, The Netherlands

*The protection of bios. An urgent priority in international policy*

#### Dr. Agni Vliavianos-Arvanitis

President and Founder, Biopolitics International Organisation, Greece

## From Rhetoric to Reality



**Kitty Kyriacopoulos**  
Honorary Chairman,  
Silver and Baryte Ores  
Mining Co., Greece

The protection of the environment concerns every human being on this planet, and unless we realise this fact, I fear that we will not be able to protect our planet for future generations. Education is the only way to achieve this awareness. This is why

the teaching of the Biopolitics philosophy is so important and should start even as early as kindergarten. However, this is a long-term mission. Meanwhile, there is much to be done in other fields. Obligations should be imposed on all enterprises - not only industries - to respect the environment.

I believe ethics should become the number one objective of all governments throughout the world. However, the big responsibility lies with those countries which have achieved their economic advantages not only at the expense of their own environment but, often, at the expense of less developed regions of our world. The creation of an International Court of the Environment is imperative. Action should be taken immediately; time will not wait.

### International Court of the Environment Need and Structure



**Judge Amedeo Postiglione**

Director, International  
Court of the Environment  
Foundation,  
Italy

The International Court of the Environment would ensure a universal economic development based on the fair exploitation of resources, by complying with the legal standards and the obligations as foreseen by

international law. Only with such an innovative legal instrument will it be possible to remove the case of environmental damage having international relevance from the fields laying outside jurisdiction, since it is society that experiences the environmental damage. Today, it seems urgent and necessary to establish - without resorting to bureaucratic controlling and antidemocratic bodies - an International High Authority for the Environment, a real Agency with powers and means, and an International Court of the Environment - i.e. a real jurisdiction open to individuals and NGOs, though equipped with the appropriate filtering mechanisms which could deal with the most serious cases on international liability initiated by individuals, associations or States. The Earth has a limited size and few resources, which are all interdependent. Therefore, environmental justice on a global level has a well-determined ethical basis because the challenge is very actual. Though it is not a simple task, it is urgent to identify some conducts that are to be blamed, prevented and sanctioned from the moral, social and legal point of view.

**Professor Giovanni Conso**  
President Emeritus,  
Constitutional Court,  
Italy



The B.I.O. Conference for the International Court of the Environment, which was held in Athens - cradle of ethical and aesthetic values - will reinforce the enactment of such an exec-

utive instrument. There are two ways in which we can proceed. Either to create an independent court to try environmental crimes, or to use the existing international institutions that will be provided with the necessary legislative framework. The first solution is obviously preferable, but the institution of an independent instrument may be delayed considerably, as demonstrated by the fifty-year process for global recognition of the Charter of the International Criminal Court, which is only just being completed. It would, therefore, be more efficient to incorporate environmental crimes in the jurisdiction of the International Criminal Court with the necessary legislative adjustments and modifications. This does not only constitute a political, scientific or legal need, but predominantly an ethical and aesthetic need.



**Professor Alfred Rest**  
Senior Academic  
Counsellor, University  
of Koln, Germany

An International Environmental Court is indispensable. National courts are still most ineffective and, at the international level, courts do not have a comprehensive competence to protect the environment sufficiently, or cannot guarantee the

rights of NGOs or individuals, because of lack of legal access. Nevertheless, international courts are a prerequisite for the development of international environmental law and can also play a very important complementary role to support the work of the PCA, which for the time being, could be the right forum for the development of an International Court of the Environment.

By its recent Draft Optional Rules for Arbitration of Disputes Relating to Natural Resources and/or the Environment, the PCA offers new innovative instruments for an effective control of the application of national and international environmental law, as well as for the participation of private parties and other non-state-actors in the dispute resolution process. It thereby takes into account the increasing importance of NGOs, environmental interest groups and individuals in the field of environmental protection.

**Dr. Ivano Iai**  
Constitutional Court,  
Italy



The Charter of the International Criminal Court, signed in 1998 in Rome, contains certain interesting aspects relating to the environment. These aspects are crucial elements that can be integrated under the jurisdiction of a future instrument for universal justice. The

Charter treats crimes against the natural environment, such as the use of poisons or toxic weapons and gases in the case of war as war crimes. The creation of an International Court of the Environment will not constitute an obstacle for the jurisdiction of the International Criminal Court, since its role in environmental issues is limited to environmental damage caused by war.

#### John Sarmas

Member of the National Court of Audits, Greece

Extensive effort, global mobilisation, increased expectations by the international community, but despite milestones such as the Rio Declaration and Agenda 21, reality is grim. The international movement for the protection of the environment has failed. As evidenced at the recent meeting on global climate change in the Hague, intensification of the phenomena is obvious to all of us, but the international community is unable to get its act together. What is going on?

The International Court for the Environment can be nothing but the endline to a process of global evolution. The global community proceeds with great hesitation to the legal settlement of international disputes and only when the circumstances are

# OF THE ENVIRONMENT



favourable. A new process has to get underway, set on a new basis. The root of the problem has to be addressed. Protection of bios and the environment must be modestly incorporated, following the lessons learnt by successful initiatives. Possibly, instead of the UN, the first step should be taken by the Council of Europe, under the auspices of

which operates the most successful international institution, the European Court for Human Rights.

## Access to Environmental Justice Methods of Implementation

**George Kremlis**  
*Head, Judicial and  
Legislative Affairs,  
European Commission  
DG XI*



Access to environmental justice and law is a matter of considerable importance, especially during the implementation of environmental policy and, therefore, protection of the environment. It is evident that with no enforcement mechanism, environmental law is not complete. On the European Union level there is no environmental court. The duties of the European Court of Justice (ECJ) include environmental matters and, therefore, it acts to a certain extent as an environmental court. The ECJ is based on articles of EU law. The environmental cases presented so far at the ECJ involve a great variety of legal issues. Such cases can be extremely complex and technical and may require technical support, which is usually provided by officials from DG XI.

The preparation of the 6th Environmental Action Programme could be an opportunity to address some of the aforementioned issues in a co-decision frame where the European Parliament is expected to request more public participation and access to justice. In this evolving context, the idea of creating environmental courts becomes very attractive and challenging in the sense that it may facilitate access to justice in general, make it more effective and foster the improved application of the available instruments at international, EC and national level. Best practices could be developed in this direction.

## International Proposals

**Professor Udo Simonis**  
*Science Centre Berlin,  
Germany*



Global environmental policy could gain strength if the management of the United Nations Environment Programme (UNEP) or of the UN Commission on Sustainable Development (CSD) were made more efficient. However, such a minimalistic strategy of efficiency improvement is no panacea: it can only be an element, not the core of future global environmental policy.

Therefore, instead of merely calling for improved efficiency and co-ordination, proposals have been made to establish a world Environment and Development Organisation (WEDO) as a new specialised agency of the United Nations. At the very least, such an organisation should integrate UNEP, the CSD and the relevant Convention Secretariats (climate, biodiversity, desertification conventions); close co-operation with the Bretton Woods institution



- the World Bank, the International Monetary Fund (IMF), the World Trade Organisation (WTO) - and the existing UN specialised agencies would need to be ensured.

Also, ideas have been presented on the decision-making procedures, the participation of non-governmental organisations (NGOs), and on the financing of such a World Environment and Development Organisation.

**Maggi Mikaelsson**  
*Council of Europe  
Parliamentary Assem-  
bly, Sweden*



Today, we live in a world where we can no longer deny the existence of huge environmental problems that impact our lives. Depleted uranium used in the NATO bombings in South-eastern Europe, cyanide pollution of the Tisza river in Romania, "mad-cow" disease threatening food production in many countries in Europe are just some examples of what has been occurring during the last years.

Is this necessary? Could these environmental disasters have been prevented? What can we do to create a better standard of living for all people, so that bios - life on this earth - can be secured for future generations?

I would like to focus on three levels where urgent action is needed. These are: the individual, the private, and the political level. As individuals we have an ostensible right to bios, to life. But, as an individual, one does not only have rights, one also has duties. If we wish to change the situation, we have the responsibility not only to talk or to wish, but also to act. In this context, a legal mechanism to solve environmental disputes on an individual level, a national level and between countries is urgent. Whether there should be a new International Court of the Environment or whether existing legal instruments could be adjusted to also handle environmental issues, is yet to be apparent. I hope, anyway, that the discussions that are taking place under the leadership of the Biopolitics International Organisation will put the question forward.

**John Hartland**  
*Counsellor and Special  
Advisor to the Secretary  
General of the Parli-  
amentary Assembly,  
Council of Europe*



The Council of Europe is co-operating with the Biopolitics International Organisation from the early 1980s. This co-operation will continue also this year with the common preparation of a conference about lifestyles in the new millennium. This conference will focus on many of the subjects that will be discussed here today. The Council of Europe is making its decisions along with the Council of External Affairs Ministers, on the basis of the proposals made by each Parliamentary Committee and the Minister of each country. The Council of Europe will organise a meeting for the effects on the environment of the war in Yugoslavia. The Council has shown a great sensitivity on this issue and, if the majority of member states agree, there will be a proposal in co-operation with the Security Council about what can be done in situations like those that we experienced in the recent war.

## RESOLUTIONS

**Acknowledging** that there exists a global environmental crisis that threatens all the major ecosystems and life - bios - on our planet;

**Acknowledging** also the growing public demand for an urgent solution to this crisis and the need to espouse new ethics;

**Recognising** the fundamental right to a healthy environment in conformity with human dignity and the need of each individual to have the appropriate legal access;

**Recognising** also that all States and all people shall co-operate in eradicating poverty and in protecting the global environment for the benefit of present and future generations;

**Emphasising** that the international community has an obligation, as the guardians of global natural resources, to conserve, protect and restore these resources and to preserve all other species from further pollution, contamination and extinction;

**Emphasising** also that an International Court of the Environment could also contribute to the development and promotion of international environmental law;

**Emphasising** further that such a court is intended to be complementary to international, regional and national judicial systems including the relevant compliance and enforcement instruments;

**Reaffirming** the Millennium Declaration adopted by the United Nations General Assembly on September 18, 2000, in particular the relevant articles pertaining to the respect for nature and protecting our common environment; and

**Recalling** the spirit of the resolutions adopted at the conference at George Washington University on April 15-17, 1999, by the Biopolitics International Organisation on June 7, 2000, and at the International Court of the Environment Foundation Conference in Rome, on November 10, 2000

it is resolved that:

1. There is an urgency to recommend to governments, parliaments, international organisations and non-state actors to consider, without further delay, the establishment of an International Court of the Environment with mandatory jurisdiction and broad legal access.
2. There is a fundamental human right to a healthy environment that can be protected through such a court.
3. Pending the establishment of such a Court considers that the Permanent Court of Arbitration (PCA) is the appropriate forum to resolve environmental disputes.
4. The recent efforts made by the PCA to develop a specific set of rules of procedure to resolve disputes pertaining to natural resources and the protection of the environment are welcomed.
5. Governments and parliaments are invited to be guided by the spirit of this resolution in their forthcoming meetings and conferences on these and related issues.

# INTERNATIONAL COURT OF THE ENVIRONMENT



## Bio-diplomacy - defence for life

Present threats to bios are international problems. The required solutions entail the development plans of action for peace and international understanding. International co-operation may lead to a new era for the diplomatic world; the era of bio-diplomacy. Nations will no longer be at war with each other but, with environmental destruction and abuse. Foreign policy may thus shift from a fragmented, competitive framework to a vision of unity and interdependence.

Bio-diplomacy recognises that cultural differentiation constitutes the wealth of the body of humanity. Humanity is part of the overall body of bios, where DNA, the genetic code for every living organism, is the link connecting all forms of life. Trees, the source of oxygen on our planet, can be considered the "lungs" of the body of bios. Damage to the lungs is not an isolated event but results in the whole body suffering. These unifying concepts are promoted as the primary consideration of bio-diplomacy which is involved in enhancing international co-operation in environmental issues and actively supports efforts to maintain biological and cultural diversity. At the same time, bio-diplomacy seeks to improve human relations and attain the goal of world peace by replacing current diplomatic attitudes with a complete international and intercultural perspective. Diplomats of all ranks and nations should be able to appreciate the great importance of this task and make the best possible use of all the levels of power at their disposal. The pursuit of bio-diplomacy in a co-ordinated fashion, at the

international, national, regional, and local levels, will undoubtedly provide for increased co-operation among people across all borders separating them. Especially where issues of "transborder pollution" are concerned, the need for internationally agreed upon preventative policy is crucial. Diplomacy can encourage international co-operation in environmental protection to enable countries not only to control, but also to promote the eradication of environmental deterioration, through international co-operation and the sharing of experiences and know-how. The role of major international environmental fora (Rio, Kyoto etc.) can be crucial, and make a significant contribution to the reversal of global climate change and the implementation of Agenda 21.

To encourage international co-operation the world needs to stop investing in war and start investing in the preservation of the bio-environment. Competition for ways to destroy, should become co-operation for ways to save. Without interfering with vested interests, the greatest challenge for the 21st century should become the development of new ways of channelling current defence protocols so as to adopt the principle of defence for bios as the primary national and international priority. Existing defence equipment can be amended and used for reforestation, water resource clean-up, soil erosion recovery, protection of the ozone layer and the de-contamination of areas affected by nuclear radiation.

A. Vlavianos-Arvanitis. *The Bios Theory*, 1985.

## Business and Finance



**Constantine Kanonis**  
President, Hellenic-Russian  
Chamber of Commerce, Greece

Would you invest for profit in the Chernobyl, or Kozlodou, nuclear plants? Would you buy shares in a company that manufactures products from depleted uranium? Would you lend money to a project that has been sued for polluting the Danube, or

a good part of the sea and coastline?

Nobody in their right mind would do any of the above, irrespective of their environmental sensitivities. Therefore, environmental issues should be taken into consideration when participating in or financing any project. The environment has been deteriorating and development is endangered. Our only hope is that our "bio-awareness" has increased.

Bio-awareness can save the environment and provide development. Financing is undertaken by banks and international organisations. If we compare the projects financed that have burdened substantially the environment to those projects that are environmentally friendly the conclusion is not encouraging. Today's global society is neither as civilised as we imagine nor as healthy as we think.

Economy and ecology have the same prefix: eco. It comes from the Greek word for "home." Therefore, economy deals with the laws (nomy) of our home and ecology deals with the logic that should govern it. Our home, today, is our Earth. I would like to conclude by stating the obvious: There is no economy and ecology without life - bios - and there is no life without economy and ecology.



**Anthony Gortzis**  
President, World Federation  
of Advertisers and Director of  
Corporate and Media Relations,  
Unilever, Greece

In the following decades, industry will be judged according to the services it provides in order to protect the environment. The truth is that a lot has been done, and there is optimism and an effort to achieve a cleaner environment. The recognition of the importance of the environment is not simply the result of increased public awareness of such issues. It stems from a firm conviction that we have a responsibility to contribute to a better future. This responsibility is a fact. Our own existence depends on it. If the environment is our world then we ought to make it better. Industry, as a social unit with structure, organisation and social responsibility, can play an active role in this effort. When an industry systematically controls its polluting substances and monitors waste generation then it can improve profits.

**Dr. Harilaos Harakas**  
Legal Counsel, Federation of Greek Industries, Greece

In our time, an era of transition to a new age when the multifaceted and complex procedure of globalisation is accelerating at an extreme rate as a result of the rapid progress made by technology - in particular, information technology - we can observe irrational developments in all systems and imbalances between the economy, politics, culture and values. This rapid and unstable course of globalisation leads to nightmarish risks for the whole biosystem and for life in general. Therefore, the idea of an International Court of the Environment inevitably leads to the suggestion that the value system of the judicial procedure must be selected and

## Bio-Diplomacy

The conference events were attended by the following Ambassadors and diplomats:

The Ambassadors of Armenia **Armen Petrossian**, Great Britain **David Madden**, Canada **David Hutton**, Colombia **Manuel Jose Bonett**, FYROM **Ljuncu Arsouski**, Israel **Ran Curiel**, Italy **Agostino Mathis**, Hungary **Istvan Pataki**, Luxembourg **Fernand Kartheiser**, The Netherlands **Paul Brouwer**, Poland **Wojtek Lamentowicz**, Slovakia **Milan Dubcek**, Slovenia **Bornd Mahnic**, Thailand **Precha Pitisant**, the Apostolic Nuncio **Paul Fouad Tabet**, the Diplomatic Representative of the Palestine **Abdullah Abdullah**, the Charge d'Affaires of the Embassy of Brazil **Paolo Roberto Franca**, the Scientific Attache of the Chinese Embassy **Mr. Zhang**, the Minister Councillor of the Embassy of Georgia **Akoki Lomidze**, the Charge d'Affaires of the Hungarian Embassy **Maria Szeke-lyi**, the Councillor of the Hungarian Embassy **Karolyi Kiss**, the Minister Councillor of the Embassy of Indonesia **Bistok Damanik**, the Minister Councillor of the Italian Embassy **Mr. Sampoli**, the Charge d'Affaires of the Embassy of the Netherlands **Vervloed Johannes**, the Minister of the Embassy of Sweden **Sven Malmberg** and the Charges d'Affaires of the Embassies of Ukraine **Yevgen Berebyinis** and Yugoslavia **Goran Alexic**.

The presence of so many diplomats at this Biopolitics conference is an example of bio-diplomacy in action. Environmental threats do not discriminate along national boundaries, and global co-operation in environmental protection is an urgent priority. The conference resolutions will be promoted in the countries that were represented, and we hope that, in this way, the establishment of an International Court of the Environment will be accelerated and further environmental destruction will be prevented.

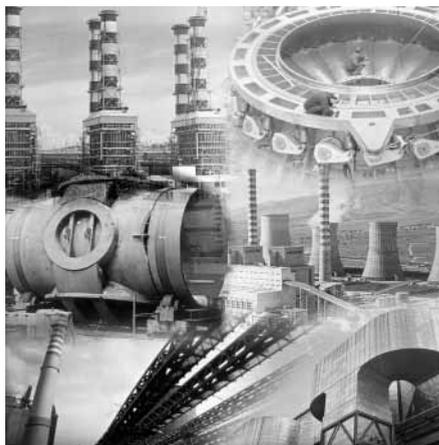


**Panagiotis Koutsikos**  
President, ERGO S.A., Greece

We cannot allow further squandering of natural resources. Governments and people must realise that the problem of atmospheric, ground and water pollution affects us all. A lot of money must be spent in order to remediate and, most importantly, to prevent environmental accidents and damage. On the other hand, however, it must become clear that the cost of protecting the environment should not be considered solely the responsibility of a certain social sector - such as the business sector - but should be equally distributed among social groups, according to their capacity to bear the financial burden. It is essential to understand that without a clean and protected environment, no human endeavour or action will be able to have long-term potential. There is no place on this planet that can constitute a safe haven for anyone in the event of serious environmental degradation. Pollution and environmental abuse will sooner or later affect the doers. Nature will take revenge.

applied appropriately, in order to enhance older and new values in the most judicious and democratic manner. B.I.O. can encourage the genuinely and globally represented international civil society to enter a serious and intensive participatory procedure, and that it can bring about and maintain an international sense of vigilance.





## EU ENERGY POLICY

**T**he dawn of the third millennium should have coincided with important crossroads for the energy sector at the global level. Environmental concerns are gaining ground on purely economic considerations, but above all, decision makers are now facing crucial long-term energy policy choices. The decline in coal, dependency on oil, the future of nuclear power, the profitability of renewable and new energy sources: there is no lack of challenges. For Europe, which accounts for 16.6% of the global energy consumption but only for 6% of the world's population, the time has come to face some serious choices. The on-going liberalisation of the gas and electricity markets is profoundly changing the structure and dynamics of energy markets in Europe. Markets are becoming more fluid at the Community level and decisions affecting one Member State necessary affect the others too.

In compiling this article, information from the European Commission's Green Paper "Towards a European strategy for the security of energy supply," Brussels, 29 November 2000, was used.

### Oil

**O**il has a larger share of the energy market than any other fuel type, although this proportion is falling. In 1970, oil represented more than 60% of primary energy supply, this figure is now down to 44%. Demand for oil continues to grow, particularly in the transport sector. Transport is important to oil markets because it is both almost completely dependent on oil as an energy source, and one of the major customers for oil.

Without a technical background, transport is likely to maintain a growing appetite for oil and could account for up to 65% of oil demand by 2020.

### Natural Gas

**G**as is of particular significance to the supply security debate for three reasons. First, it is increasingly becoming the favoured fuel for electricity generation (including combined heat and power) replacing oil and coal. Second, due to its chemical composition, gas has lower greenhouse gas emissions than oil and coal for many types of energy services. Finally, it benefits from being easily available from reservoirs both within the EU and close to its borders.

Gas demand has risen across the community over the last 10 years, representing a growth in market share from 16% to 21%, albeit at uneven rates. On average, the market share of gas is estimated to rise from 21% in 1998 to 27% in 2020. Two thirds of the increase in demand is accounted for power generation.

### Solid Fuels

**S**olid fuels include anthracite, bituminous, coal and lignite. They are attractive in supply security terms because European reserves, particularly of hard coal, are plentiful. Indigenous coal production is falling for a range of reasons, thus increasing EU dependence on imports, while the attraction of solid fuels for many operations has diminished due to the harmful emissions from its use. Technological advances could renew interest in coal.

EU coal demand is following a determined downward trend, due to the wide-scale removal of coal from domestic households, the substitution of coal generation by gas and the restructuring of the steel industry. Domestic production is falling even more quickly, leading to a slight increase in imports. Imports are not rising as quickly as they would have if EU coal demand had remained constant.

Enlargement could benefit the EU's coal balance if Eastern European coal satisfied some of the demand in the existing EU. A more likely scenario is that restructuring in accession states leads to new falls in production without corresponding falls in demand. The net result is likely to be increased dependence on coal imports.

The medium term projection is that demand for coal would increase after 2010, especially for power generation, due to a projected price increase of gas and the decommissioning of ageing nuclear power plants.

### Nuclear

**F**rom a small base in 1970, the EU now depends on nuclear energy for 35% of its electricity production. Conventional nuclear power depends on uranium, so any analysis of prospects for nuclear must focus on the availability of uranium. Several Member States have taken a political decision to phase out nuclear, replacement fuel is not easily and cheaply available in large quantities. Another difficulty is that alternative conventional fuels emit significantly more pollutant gases.

Enlargement is not going to accentuate the current situation. Some candidate countries are also highly dependent on nuclear generation, e.g. 40% of Bulgarian, 40% of Hungarian, 44% of Slovakian, 38% of Slovenian and 77% of Lithuanian electricity generation comes from nuclear. It has been estimated that the nuclear share of electricity generation in accession countries plus Switzerland and Norway could fall from around 15% now to 8.5 in 2020 (source E3MLAB-ICCAS/NTUA, Athens)

EU demand for uranium has stabilised at about 20,000 tonnes per year, it is only partly fulfilled by fresh production, and the gap between production and requirements is likely to remain for some time, as secondary and non commercial sources are being run down. Currently MOX contributes around 3,000 tonnes per year of uranium equivalent.

Future trends in demand are unclear given the uncertain future for nuclear power in several Member States. Demand for uranium in the EU will increase if nuclear generation increases. This will create greater dependence on external resources, e.g.

Russia, Canada, and Australia including uranium no longer needed for defence purposes. Recycling spent fuel and using fast breeder reactors could moderate this increase.

Demand for nuclear energy will be strongly affected by demand for electricity on the one hand and the capacity to generate electricity, cleanly, from renewables and coal.

### Renewable Energy Sources (RES)

**T**he major RES sectors are wind, photovoltaic (PV), solar thermal (solar thermal power plants and solar energy in buildings), hydro (small and large scale), biomass (with and without wastes), and geothermal.

Renewable energy sources are currently unevenly and insufficiently exploited in the European Union. Some countries, such as Austria and Sweden, France and Italy have large renewable sectors, some, such Germany, have intensive programmes or legislation in favour of renewables and some have little exploitation of renewable sources. In one renewable sector, large hydropower, potential EU capacity has been almost fully developed, while in others, such as PV and solar thermal, very little potential has been tapped. The renewable industry has created many new jobs, around 15,000 in the Danish wind industry alone.

Although their potential is significant, renewable sources of energy make a disappointingly small contribution of around 6% to the Union's overall gross inland energy consumption, of which 4% is hydropower. The challenge for the renewable sector is to increase its proportion up to 12% by 2010. This is helpful to environmental targets, because, in general, renewable energy sources are CO<sub>2</sub> neutral.

For renewable sources of energy to take off (wind energy, in particular) financial or fiscal incentives are needed. The target of 20% substitute fuels by 2020 will probably remain a dead letter,

without favourable fiscal measures, regulations for their distribution by oil companies and voluntary agreements with industry. It is unfortunate that at Community level there is no harmonisation on taxation in favour of biofuels, particularly as the Commission put forward a proposal to that effect in 1992 and, on the contrary, efforts made along these lines within certain programmes have been called into question for legal reasons.

### Hydropower (hydro)

**O**f all renewable sectors, the large scale hydro sector is the best exploited and perhaps most mature. Hydro represents about 90% of all EU RES production and supplies some 14% of electricity demand in the EU. Hydro production has continued to rise fairly evenly across the globe and is likely to continue, as undeveloped countries tap an almost unexploited potential. A growth of some 2,500 MW is anticipated by 2010 (small scale hydro). Decreases in head weight, variable speed generators, reductions in the cost of equipment and environmental mitigation technologies will enhance the attractions of mini-hydropower.

### Wind

**I**nstalled capacity for wind energy more than doubled in the 1990's and the potential is for a further dramatic growth. It is estimated that a quadrupling of market potential is possible by 2020 (world-wide the potential growth is even more dramatic). In the long term, and subject to tackling technical and local planning barriers, wind energy could have the potential to contribute up to 30% of the current electricity demand.

### Photovoltaic (PV)

**P**V production is on a small scale in the EU. Cost is a decisive factor-installation costs of 5,000 euro/kW compared with 1,000 euro/kW for wind, and production costs at 0.32 euro/kWh in Southern Europe-more than 5 times that of wind. Costs in Northern Europe are around

twice this figure. PV is not highly dependent on local conditions, providing that there is direct light from the sun. Installed capacity has not grown as quickly in the EU as in the rest of the world. However, it is estimated that a significant market potential exists-perhaps as high as 2000MW in 2010, compared with 52 MW in 1995 and around 200 MW in 1999. Current market growth is around 20% per annum.

### Solar Thermal

**S**olar thermal collectors, which produce low temperature heat for domestic applications face similar economic barriers to PV, although they are less dramatic-a production cost of 0.12 euro/kWh and installation costs of 2,500 euro/kWh. Installed capacity world-wide has rocketed in the 1990's

*Unless consumption rates show a downward trend in the most rapidly growing sectors - transport and housing - Europe's energy dependence will reach more and more worrying levels.*

although the rate of growth in the EU has been relatively small. It is particularly attractive to integration into buildings as a replacement for gas or oil in heating or hot water installations. Solar energy has further uses in buildings, such as for lighting and cooling, which can significantly reduce energy demand. Even in Northern parts of the EU, its potential for applications in new and existing buildings, including private home, is enormous.

### Biomass

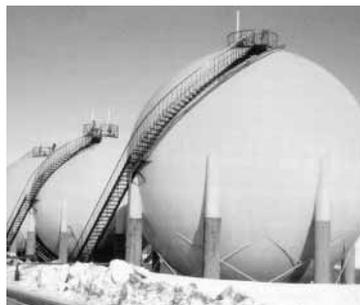
**B**iomass as an energy source, with or without other fuels (solid fuels/wastes) is now commercial in unit sizes of 10-30MW. Small, decentralised Combined Heat and Power (CHP) applications are of increasing efficiency

and importance. Production costs are comparable with wind energy, although installation costs are somewhat higher. EU capacity did not increase substantially over the 1990's. Predictions of market growth are positive, not least because of investment in technology development projects. It is estimated

that market potential in the EU could rise from 3.862 MW in 1995 to 8.766 MW in 2010. In the long term, biomass has a theoretical potential of up to 20% of current primary energy (assuming 20 million ha of arable land for fuel crop with a yield of 6toe of biomass per ha and the availability of 150 Mtoe of waste biomass).

### Geothermal and Heat Pumps

**G**eothermal energy depends on similar technology to the oil industry. The installed capacity in the EU has risen gradually in the 1990's and is likely to continue to do so, but the market potential by 2010 is unlikely to exceed 2700 MW, unless costs can be brought down. In order to increase this potential, low enthalpy sources need to be exploited and the exploitation of proven reserves must be intensified.





European Union  
Leonardo da Vinci  
Programme



# Bio-Environment & New Millennium Environmental Education

European Union Leonardo da Vinci  
Athens, March 29 - April 1, 2001

## Points of Discussion

### Why is environmental education essential?

Since its inception in 1985, B.I.O. emphasises the interdependence of humanity and the natural world. The understanding of changing environmental circumstances and of the fluidity of the concept of environmental protection

requires the development of a critical appreciation of the numerous influences affecting the interactions between humanity and the environment. Environmental pollution is an international problem and a matter of vital importance for all. Concern over environmental questions is an international task, particularly for highly developed, industrialised countries. We must acknowledge our individual and social responsibilities and the fact that environmental protection involves confronting conflicting interests. There is a need to balance environmental and economic priorities in order to achieve safe and just global management. Environmental education consolidates awareness of the importance of incorporating the environment in every human endeavour and enables the realisation of the interdisciplinary nature of environmental protection.



From the left: Professor Marta Salona-Bordas, Dr. Agni Vlavianos-Arvanitis, Professor Hunay Evliya

### Defining the environment and the issues at stake

Stressing the international character of environmental problems and the multidisciplinary nature of the environment is a priority in environmental education and one of the major B.I.O. goals.

The environment is an integrating concept referring to the sensitivity, experience and culture of each member of society. Environmental quality and quality of life are inextricably linked. Human

rights violations, disease, hunger, lack of safe water resources and poverty are more common in areas of severe environmental abuse. Health problems linked to the environment, food subsistence and access to culture and general welfare, including security and peace, are some of the challenges to be faced. In this framework, culture - **bio-culture** - as defined by B.I.O., is a priority.

### Scope and limits of the Bio-Syllabus

In 1990, B.I.O. launched a groundbreaking Bio-Syllabus demonstrating the incorporation and implementation of environmental dimensions in many academic disciplines. Now, more than a decade later, it is essential to revise and update the Bio-Syllabus in view of the increasing societal demands for an all-encompassing environmental education. The scope of this revision is to dynamically promote the development of environmental education in primary, secondary, tertiary and adult education, as well as in vocational training. It

also to focus on the development of conceptual, methodological and practical guidelines for teachers and trainers, as well as for decision-makers in charge of the development and management of environmental education. Environmental education should be perceived as a priority in every academic, administrative (public and private), business and professional initiative. The subject matter of the *Bio-Syllabus* and the teaching methods to be applied aim at a highly efficient environmental education with a view to the future.

*In the race to save the environment, bios may serve as a lever to raise the spirit of the world.*

### Teaching and dissemination methods

To be interesting and effective, teaching techniques must focus on the state of the art in information and technology and also be continuously researched and revised. Caution should be applied to tailor the educational material available to the needs and mentality of the recipient population through appropriate assessment and research. Adaptation to local reality and the learner's interests is vital in this context. Environmental education should be disseminated as widely as possible with the assistance of educational institutions, businesses, municipal authorities, governments, NGOs and other stakeholders. By promoting joint action in all sectors of society and the economy, a broad consensus about

the development of an environmentally-responsible citizenry can be built. B.I.O. promotes the following initiatives:

- training seminars, refresher courses and extra-curricular activities
- programmes in co-operation with schools and communities
- establishment of local, regional, national and international networks
- use of satellite television broadcasts and internet teleconferencing
- application of multimedia technology and multimedia support centres
- databanks and information exchange sites in the scope of the B.I.O. Bank of Ideas project



The Biopolitics International Organisation (B.I.O.) is participating as a partner organisation in the European Union Leonardo da Vinci *Bio-Environment & New Millennium* programme. The programme is co-ordinated by **Action Link/Action Synergy S.A.** and aims at the promotion of environmental education and training in business, academia, public administration and government. It also aims at the development of international networks with the goal to diffuse environmental education as widely as possible among educational institutions, SMEs, municipal authorities and other organisations.

The *Bio-Environment & New Millennium* work programme involves the organisation of local dissemination seminars and other activities. Partners are encouraged to organise events such as seminars or workshops involving the participation of local authorities, enterprises, universities etc., to discuss the project and its objectives.

In the framework of these dissemination activities, B.I.O. held a meeting in Athens, from March 29 to April 1, 2001. The meeting convened as a series of workshops and small discussion sessions with the participation of scholars, experts and

### Teacher training

The need for good quality training for teachers involved in environmental education cannot be over-stressed. Projects to develop peer support systems for teachers seeking to introduce environmental curricular units into their classrooms should be encouraged, with teachers leading professional development activities in their schools and regions during the academic year. A network of teaching fellows and senior associates could be established to promote networking on a world-wide level. Through this *Leonardo da Vinci* initiative, such projects could be enhanced. Teachers must also be encouraged and trained to use methods in which students become agents of their own learning by being truly involved in the learning process. Moreover, teachers should try to facilitate a holistic approach to environmental problems with special attention to the multidisciplinary and interdisciplinary nature of the environment.

Environmental education in practice involves the use of teaching techniques that are not necessarily routine. Therefore, the direct participation of teachers in designing and producing teaching and learning materials should be encouraged.

*Protecting and managing the environment rationally is the most consequential task in the new millennium.*

The learning process has to be flexible and interactive so that students become independent and develop their own sense of initiative, responsibility and commitment. Current inefficiencies in teacher training could pose serious problems in the future. To better prepare for the challenges ahead, attention should be given to the intensification of initial and in-service training. Experience has shown that training grafted onto the general educative process predominates over more specific options. Substantial efforts must be made to revamp the training curricula based on a rigorous analysis of each specific case so as to prepare teachers adequately on the basis of clearly formulated goals.

### Incorporating environmental education in existing educational systems

Environmental education is an interdisciplinary subject of relevance to many fields of teaching. Given the complexity and the various levels of relationships with society as a whole, a wide range of subjects can contribute to environmental education. Educational institutions should therefore be encouraged to devise their own environmental education profiles, based on their strengths and the overall focus of their activities. The non-exclusive approach of environmental education is an opportunity to lift the barriers separating different disciplines and to offer a well-rounded education which is not bogged down by overspecialisation.

Environmental education is hard to dispense inside the classroom, cut-off from the outside world. Schools are encouraged to open up to the outside world through partnerships, consultation of research specialists, working with local communities and authorities, etc. Such objectives and methods necessitate inventing new ways of managing time in schools or other educational institutions. New programmes and curricula should be designed with this in mind, with the necessary adjustments in timetables and agendas. The promotion of envi-

ronmental education in business, public administration and government should also be emphasised. Programmes for vocational training and seminars for decision-makers are absolutely necessary if environmental awareness is ever intended to produce action.

Rapidly growing environmental problems have led to the realisation of the need to institute a new type of education to raise environmental consciousness among all members of society and disseminate information about the fragile balances of nature.

Protecting and managing the environment rationally is the most consequential task in the new millennium and, as such, offers unprecedented challenges and opportunities for all.



# & New Millennium

## Education Workshop

Leonardo da Vinci Programme

29 - April 1, 2001

educators from Germany, Spain, Turkey and Greece. Participants addressed the future development of environmental education with a view to a more efficient transfer of know-how. Themes included successes and failures in environmental education, state of the art and materials available, current needs and future directions to follow. The goal was to arrive at resolutions and recommendations for improving and reforming educational curricula on a world-wide level and to draft a new and improved *Bio-Syllabus*.

B.I.O. is a pioneer in environmental education and, in 1990, launched the International University for the Bio-Environment (I.U.B.E.) to transcend the constraints of educational institutions and infuse all academic disciplines with environmental thinking. The I.U.B.E. is now represented in 111 countries world-wide and via distance learning initiatives offers the opportunity for many of the world's most brilliant scholars to share ideas and information. B.I.O.'s extensive networking capabilities not only in Europe, but also in the sense of what Europe can offer to the rest of the world, are brought to this Leonardo da Vinci project through the I.U.B.E.

### Participants

*Expanding the vision of bio-environmental education: Biocentric ethics and culture*  
Dr. **Agni Vliavianos-Arvanitis**  
President and Founder  
Biopolitics International Organisation, Greece

*Environmental ethics - a matter pending in European curricula*  
Professor **Marta Salona-Bordas**  
Department of Zoology  
Universidad del Pais Vasco, Spain

*Social and cultural environmental education*  
Professor **Sofia Dascalopoulos**  
Head, Department of Social Anthropology  
Dean, School of Social Sciences, University of the Aegean, Greece

*Applications of energy and environmental education - environmental problems as a cultural challenge*  
**Vassilis Dikaoulakos**  
Scientific Associate  
Energy Centre of the Peloponnese, Greece

*International co-operation in curriculum development*  
Professor **Hunay Evliya**  
Director of Environmental Studies  
Cukurova University, Adana, Turkey

*New trends in education for energy and the environment*  
Professor **Nicholas Hatzizargyriou**  
Energy Systems  
National Technical University of Athens  
Greece

*Environmental education as moral education: Notes on the relation between natural and social nature*  
Professor **Michael Opielka**  
Director, Institute of Social Ecology, Germany

*The shift of a paradigm: from "environmental education" to "bio-education"*  
Professor **Alfred Rest**  
Senior Academic Counsellor  
Institute for International Public Law and Comparative Public Law  
University of Koin, Germany

*Environmental education curriculum development*  
Professor **Constantina Skanavi**, Department of Environment and Communications  
University of the Aegean, Greece

*Regional curriculum development*  
**John Stylianakis**  
Regional Director for Environmental Education, Crete, Greece

*The importance of pluriculturalism in environmental education*  
Professor **Nicolas Vernicos**  
University of the Aegean, Greece

*The input of B.I.O. to the programmes of UNESCO, the Commission on Sustainable Development and related institutions is immense. Since 1985, UN activities have incorporated and stressed numerous B.I.O. proposals.*  
**Alfred Rest**

*We are all on the same boat: the globe. The important thing is what we do together for the optimisation of the world conditions through appropriate environmental teaching.*  
**Hunay Evliya**

*The most important issues of our times are quality of life and the right to bios. These require the co-operative efforts of philosophers, physicians, scientists and theologians. A new discipline that combines biological knowledge with a knowledge of the human value system would build a bridge between science and the humanities, help humanity to survive, and sustain and improve the civilised world.*  
**Marta Salona-Bordas**

*We have to find new pathways to implement environmental education, creating a new system of values and ethics. The reason the Earth is threatened, is lack of education.*  
**John Stylianakis**

*The increasing intensity of environmental problems and the consistent degradation of the natural environment is very heavy load for humanity in 21st century. Passion is missing from the educational system.*  
**Vassilis Dikaoulakos**

*Continuous education and training are necessary in order to mobilise every member of society and all age groups. Both children and adults must take a personal interest in the environment.*  
**Constantina Skanavi**

*We would like to co-operate in environmental education programmes with B.I.O. We have already incorporated many of B.I.O.'s directions in our programmes.*  
**Nicolas Vernicos**



European Union

UETP Action Link  
Action Synergy S.A.



### Recommendation

In view of the urgent need to counter the crisis in values that has resulted in serious environmental threats and to assure the continuity and appreciation of the fragile gift of bios - life - on our planet, the participants of the B.I.O. Workshop on Environmental Education, who convened in Athens on March 29 - April 1, 2001, reiterate the B.I.O. proposals for an all-encompassing environmental education and, being encouraged by the progress resulting from the expansion of the sustainability concept promoted by the UN, its special Organisations and numerous NGOs, recommend the implementation of the following issues of highest priority:

#### Building new ethics through environmental education

- Environmental ethics should be at the core of every human endeavour. The involvement of every individual and sector of society and the co-operation of culture and technology are vital in this context.

- There is need for a holistic interdisciplinary approach in curriculum planning and design. This is indispensable in order to integrate social, cultural and environmental aspects and, in particular, values and ethics.

- Environmental rules and principles should be incorporated in obligatory codes of conduct for representatives of public authorities, diplomats and businesses.

- It is crucial to stress the positive relationship between environmental ethics and the notions of peace, poverty alleviation, and equity in society.

- Environmentally ethical behaviour implies individual responsibility that leads to action. Lifestyle patterns should become disengaged from over-consumerism. Waste-free production cycles and new strategies for energy production and consumption and for the protection of non-renewable natural resources are essential.

- To avoid further degradation and catastrophe, the concept of defence has to be restructured on the basis of environmental ethics and with a long-term vision of international co-operation in environmental protection.

#### Investing in environmental education: a genuine profit for society

- The concept of profit needs to be redefined to include the dimensions of quality of life, preservation of natural resources and biodiversity, better health and education, elements which constitute a "genuine" profit for humanity.

- Governments and international, regional and national financial institutions as well as the productive sector should be encouraged to mobilise additional resources and increase investments in education and public awareness.

- An independent fund for environmental education needs to be considered. This fund would encourage contributions from the public at large, from business and from governments. It would give high visibility to these issues.

- Investment is a crucial means for capitalising on the full force of education. Environmental education can shape the attitudes of the profit-seeking sector positively.

#### Reorientation of formal and non-formal education towards sustainability

- There is need to reorient education towards lifelong learning. As promoted by the I.U.B.E., an interdisciplinary environmental education which guarantees environmental literacy for every citizen on the planet is a priority.

- Non-formal education is as important as formal education. There is a need to capture the widespread attention of the general public and actively involve the local administration (mayors, municipal authorities, etc.) in environmental awareness and training.

- Environmental education in vocational training is indispensable not only for the transfer of new skills but also for the enhancement of employment opportunities.

- Environmental education is needed in business and economics, in policy and decision-making, in science and technology, as well as in the fields of legislation and jurisprudence.

- A two-way link between teachers and scholars/students, needs to be created. Learners should be given the opportunity to acquire new knowledge and skills through concrete projects and to develop their own ideas and problem-solving initiative.

- Participatory environmental education can act as a catalyst for participatory democracy.

#### Proposals for implementation

- Revision and expansion of the existing **Bio-Syllabus** and development of new curriculum materials for all educational levels as well as audio-visual materials on environmental issues.

- New **economic models and incentives** (tax cuts, etc.) promoting investments in Cleaner Production strategies.

- A **Green Salary** instead of unemployment benefits, in order for the unemployed to get involved in environmental projects (tree-planting, recycling, city cleanup, etc.).

- A **clearing-house** to provide through the use of computer link-ups a network of people wishing to co-operate in environmental education. An electronic **Bank of Ideas** to be available on the Internet can promote a world-wide interdisciplinary exchange of information and encourage environmental appreciation.

- **Volunteer environmental action groups** to tackle local issues. The participation of youth and senior citizens is particularly valuable.

- **Environmental Olympics** and **Bios Prizes** to award individuals or institutions that have contributed to the preservation and better understanding of the environment.

- A **World Referendum** for people throughout the world express their willingness to preserve the environment and the continuity of life on our planet.

- Environmental education can enhance the development of an **International Court of the Environment**, under the auspices of the **Permanent Court of Arbitration**.



**International co-operation in curriculum development**



**Professor Hunay Eviya**  
Director of Environmental Studies  
Cukurova University,  
Adana, Turkey

The general aim of B.I.O. is to encourage cross-cultural discussion and strengthen friendships between colleagues from different disciplines with a special focus on environmental education. There is a great need to establish an international educational programme in bio-environment and bio-ethics in order to ensure that scientific knowledge and community values are joined into a common and shared perception to deal with the growing environmental crisis.

Regarding current inadequacies in environmental education, there are several questions to answer: What are the bottlenecks and disadvantages of the existing system? Why is the introduction of the life sciences in environmental teaching essential? An effective environmental education is crucial. The role of environmental

education must be emphasised, curricula must be changed and the Bio-Syllabus must be disseminated through the I.U.B.E.

We are all on the same boat: the globe. The important thing is what we do together for the optimisation of the world conditions through appropriate environmental teaching. How? The answer is through international collaboration. There are three key factors involved:

**Communication:** Communication is the secret to success. Pass it on.

**Success:** Success is a journey, not a destination. **Teamwork:** Snowflakes are one of the nature's most fragile thing, but just look at what they can do when they stick together.

The future promises fundamental changes in the global balance. Environmental education requires the development of a new force of science, the force of politics and the force of law, in close co-operation with bio-ethics. The growing concern for environmental issues has also a strong influence on the nature of global priorities. It appears that the need for international collaboration in environmental education continues to increase significantly.

# Environmental Education

## European Union Leonardo da Vinci F

**Environmental ethics - a matter pending in European curricula**



**Professor Marta Salona-Bordas**  
Department of Zoology  
Universidad del Pais Vasco, Spain

Bioethics is the field of applied ethics, mostly considered a synonym for medical ethics. Bioethics has had various implications for developments in medicine and the biological sciences, such as in vitro fertilisation, surrogate motherhood, sperm banks, gene manipulation, abortion and euthanasia, organ transplants, human experimentation and quality of human life, that frequently require the co-operative efforts of philosophers, physicians, scientists and theologians.

But bioethics should not disregard environmental issues. In many parts of the world deforestation, loss of soil fertility, loss of biodiversity and local impoverishment are seriously threatening quality of life. Extinction is forever; there is no return. Biodiversity is a multinational enrichment. Nowadays, many countries in tropical areas are forbidding the collection of plants and animals in their areas to prevent "bio-piracy."

On World Environment Day, June 2nd 1998, the Governing Council of the Provincial Government of Bizkaia approved an institutional declaration proposing that the environment be recognised nationally and internationally as a human right. This declaration was drawn up in co-operation with the Human Rights Institute

of the University of Deusto and UNESCO Etxea, the UNESCO Centre in the Basque Country. The key concepts on which the proposal to recognise a human right to the environment are based in this declaration are participation and prevention. It is on these two core concepts that the various proposals for action and commitment drawn up by the Provincial Government are based. These proposals are aimed at the different players and agents involved in international society, from institutions to social movements and individuals.

The declaration has the following articles: Right to the environment; Duty to protect the environment; Right to the environment and future generations; Administrative transparency and the right to the environment; Right to effective resources; Right to reparation; Environmental education and public awareness; Shared responsibility; Implementation of the right to the environment.

The declaration was based on the need to adapt human rights continually over time. In the context of the fiftieth anniversary of the Universal Declaration of Human Rights, the right to an adequate environment entails new needs and perspectives which go beyond the classic approach to recognising and guaranteeing basic rights.

There can be no doubt that serious environmental problems exist today which affect the quality of life, and often the very human dignity, of people all over the world. Environmental education and ethics should consider these problems and promote perspectives which go beyond classic approaches and doctrines.

**Environmental education curriculum development**



**John Stylianakis**  
Regional Director for Environmental Education, Crete, Greece

Environmental education in our schools is mostly based on a thematic curriculum, and projects are encouraged. Some general goals applicable to most projects are: raising student awareness through knowledge; active participation in initiatives that are useful for society and the environment; progress towards sustainable development.

Through hands-on experience with environmental problems students have the opportunity to formulate ideas and attitudes concerning these problems. International student exchange programmes, such as Socrates and Comenius, are also an opportunity for students to learn about environmental problems in other countries. Field trips and visits to environmental research centres are encouraged in our schools, and teachers receive careful training in environmental education.

However, this is still not enough. If our planet is currently threatened by an environmental disaster, this is mainly the result of insufficient training and education. We have no more room for mistakes and cannot remain idle. The following priorities in environmental education are therefore proposed:

All students should take classes in environmental education without being graded; A "green zone" addressing the needs of environmental education should be introduced in all school curricula; New school books should be designed with the aim of promoting sustainable development; Investments in environmental education should also be encouraged; Teachers should be adequately trained to be able to cope with programmes in environmental education; A mutually beneficial relationship between schools and society should be established; Environmental education can be introduced as an elective subject in tertiary education; Decision-makers must be encouraged to support these efforts and not hinder progress in environmental education; Ways of controlling the efficiency of the above measures should be established on a local, regional, national and international level.

**Environmental education curriculum development**



**Professor Constantina Skanavi**  
Alternate Professor of Environmental Education and Communications,  
Environmental Department,  
University of the Aegean

Environmental education and awareness are popular concepts, however they have been much abused. All who concern themselves with the environment would like to see a more involved citizenry. Therefore, environmental education is essential. But today knowledge alone is not enough. Continuous education and training are necessary in order to mobilise every member of society and all age groups. Both children and adults must take a personal interest in the environment. They must also exert pressure on the politicians and demand environmental policy.

Very often the mass media blow environmental problems out of proportion, provoking brief hysterical reactions from the public. Once these reactions die down, environmentalists are faced with derision. The public ceases to believe that environmental issues are important and consid-

ers the environment a dangerous hobby for the independently wealthy.

My research group at the University of the Aegean, in co-operation with three universities in the USA, is developing ways to measure and assess public environmental awareness. This is a complicated task because environmental awareness involves a number of different elements such as the protection of nature, overpopulation, natural resources consumption, environmental pollution, the environment inside our own homes, buildings, and waste reduction and management.

Most of us are aware of global problems like the greenhouse effect, ozone layer depletion, marine pollution, unsafe water resources etc., but how can we determine whether the general public possesses this knowledge and what this means for environmental awareness?

The Environmental Communications movement aims at providing knowledge, raising awareness and developing behaviours and skills to allow citizens to participate intelligently and efficiently in decision-making that enhances environmental quality and counters environmental abuse. With the right assessment of knowledge and public sensitisation we can provide information for practical use and not just for blindfolded consumption.

**The importance of pluriculturalism in environmental education**



**Professor Sofia Dascalopoulos**  
Head, Department of Social Anthropology  
Dean, School of Social Sciences, University of the Aegean, Greece

In this era of globalisation, pluricultural and distance education are very important. There is a very close relationship between culture and the environment. Therefore, the basic concept of environmental education has to include the dimension of cultural potential.

By the year 2020, 3 billion young people have to find jobs; this is a very serious issue for those who are involved in the education procedure. The curriculum at the University of the Aegean follows the same direction as Biopolitics. Co-operation between B.I.O. and the University of the Aegean is strongly encouraged.

**Professor Nikolas Vernicos**  
University of the Aegean, Greece



The Department of Cultural Technology and Communication at the University of the Aegean focuses on the development of three academic programmes: Museology (culture, environment, technology, lifestyles) under the general theme Naturalia-Artificialia-Virtualia; Management of performance events of great size; Pluricultural education and distance learning. Emphasis is placed on volunteer work, local development and the re-introduction of the life sciences in school curricula. Distance learning is essential for an island nation such as Greece. Moreover, with a substantial population of Greeks abroad, it is becoming increasingly important for Greek culture to be widely disseminated.

*Through a truly international and multidisciplinary environmental education, every citizen of the world can contribute to the spiritual renaissance of humanity. The Olympic Spirit can play a leading role in uniting the forces of culture and technology to instil the appreciation of the aesthetic value of life on our planet. Environmental Olympics and Bios Prizes, as proposed by B.I.O. since 1985, can encourage every individual on the planet to become involved in the race to save the environment.*

A. Vlavianos-Arvanitis



# Workshop Programme

**Professor Alfred Rest**  
Senior Academic Counsellor  
Institute for International Public Law and  
Comparative Public Law  
University of Koln, Germany



Today a cultural and ecological crisis is apparent world-wide, and only education can help society to overcome this crisis. Education is humanity's best hope and most effective means in the quest to achieve sustainable development, i.e. to guarantee life and bios on our planet, Earth. Instead of focusing our attention mostly on economic development and new technologies, we must highlight the many other dimensions of progress, in particular ethics and moral values as promoted by B.I.O. since 1985.

Over 100 million children between the ages of 6 and 11 have never attended school and tens of millions more drop out of school within a few months or years. Furthermore, there are over 800 million illiterate adults, most of whom have never been enrolled in school. Therefore, the first requirement in the quest for development and equity must be to change this situation and make schooling of quality available to all. But this goal, alas, is still far away.

At the end of the 1980s and the beginning of the 1990s, however, a new vision of education under the term "education for sustainable development" took shape. Education was no longer seen as an end in itself, as manifested, inter alia, by the principle of life-

## The shift of a paradigm from "environmental education" to "bio-education"

long learning, and as means for personal enlightenment, but also as a means for cultural renewal for facing global problems.

For environmental education to be successful, there is a need to reorient education towards sustainability. Adjustments or additions to existing educational systems will not be sufficient. Curricula and teaching methods need to be re-assessed.

Non-formal education is as important as formal education, and bio-education for decision-makers, especially in business and economics, is key. Since its first International Conference in Athens in May 1987, B.I.O. has been a leader in matters of reforming environmental education. In particular, by its concrete proposals for a "curriculum revision" and with the development of the Bio-Syllabus already by 1989, B.I.O. created the basis for a reform in educational systems towards the direction of a bio-education, including all levels of formal and of non-formal education. In particular with the creation of the International University for the Bio-Environment (I.U.B.E.), established in 1991, B.I.O. can guarantee and promote teaching and training of teachers, especially on the university level, and of decision-makers at every level. The I.U.B.E. can also contribute to a large extent to future environmental research and public service. The input of B.I.O. to the programmes of UNESCO, the Commission on Sustainable Development and related institutions is immense. When looking at the conferences and recommendations of B.I.O. since 1985, it can be stated, that the UN activities have incorporated and stressed numerous B.I.O. proposals.

The B.I.O. vision for an environmental education for the future needs an intensive publicity campaign. B.I.O. should strengthen its co-operation with UN bodies, other NGOs and the private sector in order to increase its influence on running projects being supported by numerous governments and to expedite the realisation of its innovative approaches to environmental education.

## New trends in education for energy and the environment

**Professor Nicholas Hatzigiorgiou**  
Energy Systems, National Technical University of Athens, Greece



The National Technical University of Athens (NTUA) has incorporated a programme on Renewable Energy Sources (RES) in its undergraduate and graduate curricula. RES is concerned with all engineering specialisations and has a strong interdisciplinary character. The Programme is continuously updated through research and new experiences and applications. Some basic and related thematic areas include: solar thermal applications, wind parks, photovoltaics, biofuels, hydroelectric energy production, economic viability and investment analysis, energy project planning, net-

work development, renewable energy sources integration, energy system management control.

NTUA is also exploring the possibilities offered by the World Wide Web in the framework of the InterUniversity Network for RES called RENES\_unet. The University's educational aim is to diffuse relevant material to all those interested. RENES\_unet was established in order to:

Co-ordinate and promote educational and research activities of the Universities and Polytechnics participating in the programme; Promote the existing human and technological potential (infrastructures, know-how); Support industry applications in specialised areas of basic or applied research; Contribute to the definition of strategic R&D goals for RES development. To achieve these goals RENES\_unet organises classes and seminars, sponsors activities aiming at the diffusion of information related to RES, and diffuses RES related activities via the World Wide Web.

## Environmental education as moral education

**Professor Michael Opielka**  
Director, Institute of Social Ecology  
Germany



Environmental questions cross over many areas. One of the most important obstacles to overcome is the commonly held perception that social problems are pitted against environmental problems. Which is wrong, because society and the environment are interrelated concepts and nobody can do anything in society without affecting the environment. Furthermore, national social and environmental policies are developed separately and this creates further confusion in society. It is therefore essential for environmentalism to become a societal priority and not just a matter of concern for minorities.

Environmental education needs sound goals, at least for educators. Moreover, educators must be sure of the subject which they teach. They should believe in what they are doing and should be trained very hard in order to teach the right subjects and convey the proper messages. Effective environmental education must be driven by perception, contact, judgement and action from both educators and students. Political intervention and standard setting are crucial; a politically-sound message is needed at all levels. Positive re-enforcement is also essential. But the question remains: Are we allowed to keep harming nature?

## Environmental problems. A cultural challenge

**Vassilis Dikaoulakos**  
Scientific Associate, Energy Centre of the Peloponnese, Greece



In the 21st century, humanity is facing a major challenge: how to harmonise the present social, economic and cultural reality with nature. The younger generations will have to cope with this challenge to a much greater extent. As the relationship between humanity and nature is becoming increasingly complex, it is important to raise environmental concern among young people. Environmental education is vital in this context. Environmental problems are not only technological or scientific issues and, contrary to common belief, solutions cannot be just technical. Through education we have to project the overall character of the environmental crisis. Its universal attributes, the cultural parameters with which it is related and, finally, the fact that behind every environmental problem there exists a very deep lack of culture.

In order to face this dead-end situation, public awareness and sensitisation are not enough. Upgrading the predominant cultural values and shifting to a biocentric approach should become the main educational goal. Through education we have to activate the cultural procedures that will allow tomorrow's citizens to resist passiveness and inertia and make it possible for them to demand a radical cultural reorientation.

## BIO PUBLICATIONS PROCEEDINGS

- ▶ BIOPOLITICS - THE BIO-ENVIRONMENT - VOLUME I, A. Vliavianos-Arvanitis, Ed. First BIO International Conference, May 1987 (English, 400 pp.) 1988
- ▶ BIOPOLITICS - THE BIO-ENVIRONMENT - VOLUME II, A. Vliavianos-Arvanitis, Ed. Second BIO International Conference, Oct. 1988 (English, 543pp.) 1989
- ▶ BIOPOLITICS - THE BIO-ENVIRONMENT - VOLUME III, A. Vliavianos-Arvanitis, Ed. Fourth BIO International Conference, Jan. 1991 (English, 683 pp.) 1991
- ▶ BIOPOLITICS - THE BIO-ENVIRONMENT - VOLUME IV, A. Vliavianos-Arvanitis, R. Keles, Eds. Fifth BIO International Conference, Istanbul, May 1992 (English, 303 pp.) 1993
- ▶ BIOPOLITICS - THE BIO-ENVIRONMENT - VOLUME V, A. Vliavianos-Arvanitis, Ed. Sixth BIO International Conference - International Sakharov Festival, Athens, July 1994 (English, 671 pp.) 1996
- ▶ BIOPOLITICS - THE BIO-ENVIRONMENT - VOLUME VI, A. Vliavianos-Arvanitis, J. Morovic, Eds. Seventh BIO International Conference, Bratislava, June 1997 (English, 527 pp.) 1998
- ▶ BIOPOLITICS - THE BIO-ENVIRONMENT - VOLUME VII, A. Vliavianos-Arvanitis, L. Kapolyi, Eds. Eighth BIO International Conference, Budapest, September 1998 (English, 271 pp.) 1999
- ▶ BIOPOLITICS - BIO-CULTURE - BIOS OLYMPIAD, A. Vliavianos-Arvanitis, Ed. BIO International Conference, Ancient Olympia, August 1999 (Greek, 299 pp.) 2001

## BUSINESS

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## Architecture

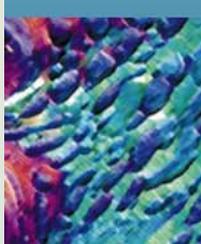
Most European city problems could be resolved by paying greater attention to the environment. Pollution reduction, waste minimisation and energy conservation can be furthered through envi-



ronmentally-friendly urban design and construction. Awareness and information on opportunities existing world-wide are vital to the development of new possibilities and new scopes in restructuring urban and agricultural areas, as well as human settlements in general.

"Bio-architecture" links the appreciation of the environment and biodiversity with urban design and planning. A "Biopolis," as promoted by B.I.O. since its inception in 1985, is the manifestation of this appreciation and functions as a model for the harmonious co-evolution of humanity with the bio-environment. It is based on the application of clean energy sources, cleaner production and bio-materials, and aims at creating a self-sufficient, aesthetically pleasing urban environment with minimal waste generation and with an active participation of every member of society in the protection of bios.

## Bio-Economics



## Economics

Economic projects on all levels cannot be carried out for the sole sake of gaining maximum monetary profit. Important measures have been taken world-wide in an attempt to minimise the deleterious effects

of the economy on the environment and communities around us. The world economy is now at the point of radically changing its attitude towards environmental preservation, and corporate leaders are encouraged to introduce bios-oriented values into their activities. The long-term goal of transforming the European economy into one whose development will be sustainable for generations to come can be achieved via sustainability promoting economic policies in industry, energy, transport, agriculture and regional development.

## Ethics

Human actions are altering environmental properties in processes in ways that have many unknown implications. Recent evidence that human intervention is seriously threatening life on our planet adds urgency to the need for "environmental ethics" to help society re-evaluate priorities and take action against negative trends. The EU sets guidelines for development which meets the needs of the present without compromising the ability of future generations to meet their own needs. Within this framework, a moral background based on environmental appreciation and respect would guarantee a society made up of responsible and affected citizens. The development of ethical guidelines for environmental protection should be researched and implemented in Europe in a timely manner.

## History

Under the influence of our developing civilisation the environment has been drastically changed. These changes have given rise

# Bio-Syllabus for European Environmental Education

to a new milieu to which humanity itself, which has caused these changes, has not adapted. However, in order to survive and to protect the environment, we must now find a way not only to adjust to the changes in the environment, but also to compensate for the deleterious effects of our activities. By establishing close links between biological evolution and human history, we can face the challenges of a new era and establish harmonious relations with the environment in order to overcome the serious environmental problems of our times. Native cultures, languages and ethnicity were, and still remain, an important component of European environmental diversity.



## Bio-History

ecosystems.

A major direction for bio-history concerns the interactions between the biosphere and humankind in different historical eras. It also concerns the ways that the environment has influenced the evolution of human civilisation. Environmental consciousness in the course of human history can be distinguished by a direct focus on practical action, the progress of mythology, the philosophical interpretation of the natural world and an integrated conception of the bio-environment. In the bio-historical context, the modern phase of bio-history is characterised by highly developed science, technology, and culture, but also by environmental problems and issues.

## Technology



is not viable. New technologies that prevent pollution, rely on clean energy sources and encourage resource conservation should be further researched and pursued. Moreover, progress in every field of human endeavour should be evaluated in terms of its contribution to environmental appreciation and protection.

Policy on industry-related risks, scientific research in and development of clean technologies and nuclear safety and radiation protection, must be implemented globally. The "bio-assessment of technology," as promoted by B.I.O. since 1985, involves a thorough re-evaluation of priorities in technology and the development of initiatives that respect and help the environment. These initiatives include environmentally-friendly technology, as well as progress in genetic engineering and biotechnology, which should, however, always be carried out with the aim of protecting every form of life on our planet.

## Health

The environment is the single most important factor influencing human health. Soil and air pollution, water contamination and inadequate food production, due to soil erosion and acidification, are just a few agents that can prove detrimental to public health and all stem from poor environmental management. Without proper understanding of the 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. In relation to the specific themes of the EU Fifth Environmental Action Programme, there has been progress in a number of areas: reduction of ozone depleting substances, emissions of heavy metals and sulphur dioxide, improvements in approaches to nature protection, surface water quality, industry-related risks and waste.

Public health issues, scientific research appropriateness and human rights concerning access to healthcare are becoming the pivot points of debates and legislative frameworks. In this effort, consideration should be given to the role the environment can play in determining the future of humanity, and decisions should be based on the interdependence among all forms of life. The biomedical implications arising from the advancement of science, and concerns over pollution and dwindling natural resources cannot be treated in isolation. The environment as a common point of reference provides a powerful link for the comprehensive treatment of the challenges we face.

## Energy



The sustainable production and use of energy poses some important challenges to the development of European environmental policy. Among the issues of great interest are the increasing role of renewable energy resources, the reduction of energy consumption, environmental taxes on emissions related to energy production (carbon emissions) and the changes in the lifestyle of European citizens necessary to ensure a sustainable use of energy. It is one of the basic objectives of B.I.O. to sensitise experts in the field of energy who in turn will look for alternative sources of energy, thereby removing the dependence on non-renewable resources in order to achieve a sustainable world economy. The recent European Commission Green Paper on a "strategy for the security of energy supply" points to the curtailing of increasing energy demands and the switching to clean energy sources as an active energy policy for minimising the dependence on fossil fuels and combating climate change.

## Legislation

Although Principle 10 of the Rio Declaration proclaimed that all people should have "effective access to judicial and administrative pro-

ceedings, including redress remedy," there has been a growing recognition that environmental justice cannot be achieved without effective international legislation dedicated to addressing environmental issues. After well-



## Bio-Legislation

therefore priorities.

Bio-legislation links the protection of bios rights to the defence of the rights of future generations. In addition to human rights, "human obligations" point to our common responsibility to preserve the environment and improve quality of life on a global level. It is therefore essential for international legislation to make explicit reference to the protection of bios on our planet and for current environmental acts to be expanded upon and re-evaluated.

## Tourism



## Bio-Tourism

Tourism is one of the most rapidly developing industries world-wide. The EU promotes environmentally-friendly tourism and encourages environmental impact assessment as one of its major integration policies. In this framework, it is important to stress environmental and cultural appreciation in tourism, and to further activities that promote an international exchange of experiences in environmental preservation.

The environment recognises no boundaries and brings people together in a common cause. The infinite biodiversity of our planet can be cherished through conscious efforts to turn travel and tourism into initiatives for a global appreciation of bios. Cultural diversity, tradition, history and "myths" can become the cornerstones of a new form of tourism: bio-tourism. Bio-tourism is not just a conventional travel plan. It is a way to explore the world's natural and cultural heritage. Bio-tourism operates outside political and national divides. It is a vehicle for peace based on co-operation and mutual understanding.

## Diplomacy

Pollution does not discriminate along national boundaries, therefore the environment is possibly the strongest link in international co-operation. Especially where issues of "transborder pollution" are concerned, the need for interna-



## Bio-Diplomacy

nationally agreed upon preventative policy is crucial. Diplomacy can enable countries not only to control, but also to eradicate environmental deterioration, through international co-operation and the sharing of experiences and know-how. "Bio-diplomacy" aims at pursuing environmental goals through diplomatic channels. It contributes to preserving the natural environment and the great wealth of bios. The co-ordinated pursuit of bio-diplomacy at the international, national, regional, and local level, will undoubtedly provide for increased co-operation among people across all dividing lines.

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