

BIO-DEFENCE DEVELOPMENT MODEL A PATHWAY TO WORLD SECURITY

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Summary

Global security threats are growing because enlightened leadership and governance are in scarcity in the world today. Effective leaders can spur progress by creating the context for change. A “green society,” based on environmental harmony and on the participation of every citizen, can curb climate change and environmental destruction, inspire economic growth, and channel technology towards life-supporting endeavours. For the past 26 years, the Biopolitics International Organisation (B.I.O.) acts as a driving force to “plant” new ideas and infuse new thinking, by mobilising the collective talent of our network in 150 countries through innovative projects and programmes that help to implement worldwide action for environmental sustainability and security. It is hoped that this conference will lay fertile ground for the further growth of this vision, and will encourage the defence of the environment as a pathway leading to the indivisibility of security in international relations.

Defence for life – a new structure for society

The world has been struck by a tsunami of unprecedented proportions, impacting both the human and the natural environments. It is characterised by an economic meltdown, loss of jobs and income, unavailability of credit, and, on the environmental front, by climate change, a declining resource base, pollution of the air, water and soil, and the loss of species and habitats. To address these global problems on a global scale, the Biopolitics International Organisation (B.I.O.) promotes a new structure for society to ensure the continuity and appreciation of “bios,” all life on our planet. This requires new educational and economic paradigms, new legislation for environmental protection, and new defence strategies – bio-defence – to eliminate environmental threats and preserve life and prosperity.

When B.I.O. was launched in 1985, it was already clear that a crisis in values, manifested by arrogance, environmental deterioration and over-consumerism, was leading humanity to an impasse. Twenty-five years later, and with escalating economic and environmental pressures jeopardising our future, it is obvious that a new societal structure is imperative. This structure needs to be rooted in time-spanning ideals and to draw inspiration from a sound value system based on the preservation and protection of life.

As stated in B.I.O.’s founding document (Biopolitics – Dimensions of Biology, A. Vlavianos-Arvanitis, 1985) human history can be traced back to a few thousand years only. During this period, several political models have been developed and implemented with varying degrees of success. The current crisis, threatening global peace and well-being, represents, in large, the failure of such models. The history of life, however, extends over hundreds of millions of years. Life has been tested in

unlimited varieties and the most viable species have survived through the powerful selection of evolution. It is for this reason that bios can become the model for attaining the desired dimensions and expanding strategies for future society.

The spreading environmental and economic crises have to be approached as a dual challenge and opportunity for restructuring our economies, curbing unemployment, eradicating poverty, protecting biodiversity, and promoting clean energy, education, international cooperation and intercultural dialogue. The interdependence of interests is obvious. We need to forget the paradigms of the past where the neighbour was considered a dangerous “other” and where differences in culture or religion were a source of alienation and power games. We need to give priority to a new dimension of profit; not profit in terms of money only, but also in terms of values and of ways of rebuilding society.

Small additions to past patterns are no longer sufficient. Economic growth with concern for goods and income only is not viable. By encouraging over-consumerism, we are running towards a cliff. It is time for health, education, natural capital, water, food, biodiversity, culture, intellectual sharing, productivity, peace and security to be quantified and to assume their rightful place in a *three-dimensional* approach to economic growth.

Bio-Environment	
Quality of Life	• Health - Safety - Justice - Happiness - Co-existence with all forms of life - External and Internal Wealth - Micro-Environment - Macro-Environment
Ethical Values	• Diachronic Values for Society - New Criteria for Business Compatible with Quality of Life
Legislation	• National - Global - Bios Rights - Bio-Diversity - Global Warming - Ozone Depletion - Overpopulation - Poverty - Deprivation
Macro and Micro-Economics	• Time and Space Scale - Historical Perspective - Millennium Approach - Cleaner Production
Bio-Diplomacy	• Interdependence - International Cooperation - Third World Viewed as Partner
International Commerce	• Durable Development - Internalizing External Costs - Consumer Protection
Governance	• New Models of Participatory Democracy - World Referendum - Defense for Bios
Education	• Biocentric Curriculum in Economics - Satellites in Education
Media and Communications	• Internet Communication Feedback - Satellite Diffusion of Information - Marketing
Energy	• Protection of Resources - Study of Bios Models
Employment	• New Opportunities for Employment in Bio-Environmental Protection - Green Salary for Unemployed
Culture	• Arts, Cultural Values, Traditions

We cannot discard the old system within a day, but we can make big steps by introducing a new scale for evaluating “quality of life” and for encouraging a society where the harmony and beauty of life are truly respected and appreciated.

Bio-assessment of technology – securing the continuity of life

Technology is advancing at a breathtaking pace. What was considered groundbreaking yesterday is commonplace today and will be obsolete tomorrow. Technology expands human potential, but can also have disastrous consequences if it proceeds without concern for its social and environmental impacts. Time and again, we have witnessed the emergence of new technologies which promised positive change, but which ultimately created greater problems than they solved. An analogy can be drawn between the current economic crisis and the risks posed by new technology that has not been thoroughly evaluated. The cause of the global economic

meltdown of 2009 has been attributed by many to the widespread acquisition of new and highly risky financial instruments. These instruments were unregulated, and when they began to collapse, they took some giants of finance and the global economy with them. Similarly, new technologies which have not met rigorous scientific scrutiny may also have severe and unintended consequences. There is an urgent need to provide international oversight of new technologies that will confirm the safety of their use to humans and the environment before they are applied to consumer, commercial or other uses.

A “bio-assessment of technology,” ensuring technological and economic progress that supports the environment would bridge the gap between technology and societal values. In a dialectic exchange of views, presenting a thesis and antithesis and then creating a synthesis of new concepts, ways of reducing negative environmental impact could be identified so as to truly benefit from the contributions of technological breakthroughs. Emphasis should be placed on the eradication of factors causing the decline of values in society, so as to harness environmental deterioration, species extinction, water and atmospheric pollution, climate change, soil erosion, acid rain and nuclear waste. This is a crucial responsibility for humanity if we are to develop technologies that respect and protect bios.

In our global effort to defend life, genetic diversity should not be overlooked. The true wealth of our planet is in the sheer breadth, richness and beauty of plants and animals. However, many of these species are being lost by resource plundering, and careless economic growth. B.I.O. proposes that we safeguard this wealth of life on our planet by creating *genetic banks* which preserve the genetic material of endemic plant and animal species and thereby protect biodiversity. The new technologies available in the field of genetics can be applied to preserving genetic variety in urban green spaces and stimulate wider interest and knowledge of the natural world. The preservation of genetic material can also be used in programmes relevant to human diseases and, therefore, have wide applications in medicine. In rural areas, local genetic banks can preserve genetic material from endemic crop species. This can help to restore genetic variation in agricultural crops and result in pest-resistant, high-yield varieties which do not depend on chemical fertilisers.

Bio-energy for combating climate change

The consumption of energy drives the engine of our urbanised society. However, the impacts of energy based on fossil fuels on the global environment and its contribution to climate change make it imperative that we develop more sustainable energy sources. It is therefore more urgent than ever to devote greater resources to the development of new energy technologies, which do not pollute the atmosphere and which do not contribute to global warming. Biological models can, once again, serve as paradigms for clean and renewable energy.

Algae are tiny biological factories that use photosynthesis to transform carbon dioxide and sunlight into energy. They do this so efficiently that they can double their weight several times a day. As part of the photosynthesis process, algae produce oil and can generate 15 times more oil per acre than other plants used for biofuels. Algae can grow in salt water, freshwater or even contaminated water, at sea or in ponds, and on land not suitable for food production. Moreover, algae should grow even better when fed extra CO₂, the main greenhouse gas, and organic material like sewage.

A *microbial fuel cell* (MFC) converts the chemical energy found in a bio-convertible substrate directly into electricity. To achieve this, bacteria are used as a

catalyst to convert substrate into electrons. The bacteria are very small (size approximately 1 μm) organisms which can convert a huge variety of organic compounds into CO_2 , water and energy. The micro-organisms use the produced energy to grow and to maintain their metabolism. However, by using a MFC, it is possible to harvest a part of this microbial energy in the form of electricity.

Hydrogen has unique potential for reducing today's dependency on fossil fuels. Hydrogen can be produced from renewable resources, such as water and agricultural products, eliminating the net production of CO_2 and helping to alleviate global warming. The transition to a hydrogen based economy begins with the commercial production of hydrogen-based fuel cells, where it is efficient and intrinsically clean, for all end-use applications. Additional research is needed in this area to reduce the cost of hydrogen production, solve hydrogen storage problems and in the longer term, integrate renewable energy sources into hydrogen fuel production.

Green jobs

A large-scale embrace of alternative energy would also create new jobs in the design, manufacturing, installation, servicing, and marketing of new technologies and products. Jobs also arise indirectly from the supply of raw materials, transportation, equipment, and professional services. In the transportation sector, the use of hydrogen and fuel cells are creating a new concept of car technology and new areas of research and development. Advancements in solar energy and the use of environmentally friendly construction materials have led to the creation of green buildings. Some green buildings are now completely and solely powered by solar thermal and electric energy that operates all systems, including heating, cooling, lighting, computers, water pumps, and office equipment. As incentives, companies could be granted tax cuts or other financial privileges for engaging the unemployed in jobs that minimize greenhouse gas emissions, promote the use of clean and renewable energy, and contribute to the overall effort to combat climate change.

Bio-diplomacy and bio-defence to meet global security challenges

Security cannot be achieved on a planet ravaged by pollution, hunger and disease. The over-exploitation of environmental resources will not lead to long-term prosperity. What is urgently needed is a common strategy, a global defence protocol against climate change, the loss of biodiversity and natural resources, environmental pollution, and the deterioration of land and water ecosystems. This is the only way to allow a vision of peace to flourish.

Bio-defence stresses the value of differentiation as an enrichment. Differences in religion, culture, language and biodiversity are the wealth of humanity. Bio-defence, and its parent concept, bio-diplomacy, or international cooperation in environmental protection, are based on interdependence and collaboration. Just as all the parts of the human body need to function together in harmonious coordination to maintain a healthy individual, modern society desperately needs a common vision to secure a harmonious and peaceful future.

Bio-diplomacy – a concept pioneered by B.I.O. at a time when the world community had not fully realised the urgency of adopting common environmental policy - focuses on the interdependence of all forms of life. Bio-diplomacy supports efforts to maintain biological and cultural diversity and seeks to improve human relations and to attain the goal of world peace by replacing current diplomatic

attitudes with a complete international and intercultural perspective. Within this framework, respect for human rights and the existence of multi-ethnic and multi-cultural societies is an undeniable principle. International cooperation in environmental protection enhances the quality of life and strengthens efforts for peace and security.

Bio-diplomacy is an opportunity for the aspirations of sovereign states and civil society to converge in pursuit of long-term policy and action, enhancing a spirit of solidarity among states. It 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. Environmental threats are international problems. Trees, the source of oxygen on our planet, can be considered the “lungs” of the body of bios. When a person’s lungs are damaged, the entire body suffers. Similarly, the widespread destruction of trees and forests that we are seeing today has drastic implications for the health of our entire planet. The required solutions entail the development of bold plans of action for international co-operation. Nations must declare war on environmental destruction and abuse. Foreign policy should shift from a fragmented, competitive framework to a vision of unity and interdependence. Bio-diplomacy seeks to improve human relations and attain the goal of world peace by replacing current diplomatic attitudes with a comprehensive international and intercultural perspective.

Re-channelling defence infrastructure

B.I.O. believes that the greatest challenge for the 21st century will be the permanent reconfiguration of defence infrastructure into programmes for the defence of the planet. The nations of the world must stop investing in instruments of destruction and begin investing in instruments of peace for the protection of our common environment. Competition to find better methods to destroy life, should be replaced with cooperation to find ways to save it. Time is of the essence, and this new vision is urgently needed.

National defence is a major priority among most nations of the world. A substantial portion of national budgets is committed to the maintenance of armed forces and the acquisition of weapons, such as highly sophisticated fighter aircraft, warships, submarines and missiles. Globally, about 10% of central government budgets are devoted to defence. In 2004, the nations of the world committed a total of \$950 billion dollars to defence spending. Developing countries spend about 15% of their funds on defence while developed countries spend 9%. Such large military expenditures can actually harm a country, because the monies could be applied to the betterment of the people and their environment.

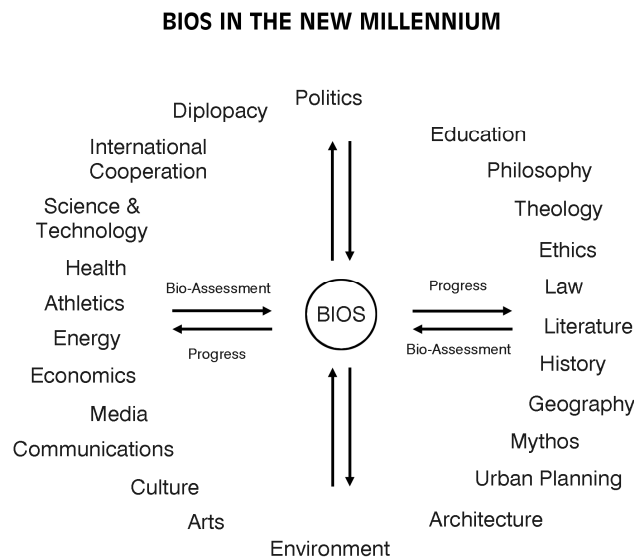
Defence for life must become a priority in every facet of our lives. War represents the ultimate failure of diplomacy. Whereas the purpose of bio-diplomacy is to protect life in all its forms, the purpose of war is to destroy life and human cultures. At the same time, war also destroys many of the other forms of life that it encounters. The environment, as a common point of reference, can bring all peoples of the world together, in a state of harmony and the absence of war. The conversion of war regimes to programmes for the preservation of the environment would guarantee a better future. Such a programme would not have negative economic effects, but rather, it would stimulate the global economy and provide jobs, since existing defence industries would be re-tooled into “defence-for-life” industries. Existing defence manpower and equipment can be adapted for peaceful tasks such as reforestation,

water resource clean up, soil erosion recovery, protection of the ozone layer and decontamination of areas affected by nuclear radiation. These problems represent real threats to the continuation of life on our planet, and no human resource should be spared in the effort to contain them.

The military offers a disciplined and trained source of manpower, readily available equipment such as road vehicles, ships and aircraft, communications and transportation capabilities, trained medical staff and logistics like tents, food and blankets. It has engineering capabilities and can work on civil projects, such as building or repairing roads, hospitals and schools. This resource has been already used to respond to natural disasters and to provide humanitarian assistance in areas ravaged by poverty and disease. In the same way, the military can apply its resources and know-how to work on projects of environmental restoration, including reforestation, erosion control, habitat and species protection, tree-planting, bringing fish back to the oceans, and cleaning up contaminated waters and soils.

Bio-education for a global responsibility

Bio-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. 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.



The purpose and responsibility of bio-education is to uplift the spirit of humanity and to reverse the crisis in values. By providing interdisciplinary models with environmental considerations in every speciality, bio-education seeks to apply environmental protection to every human endeavour.

To advance this vision, B.I.O. launched the International University for the Bio-Environment (I.U.B.E.) in 1990. The I.U.B.E. urges scholars, decision-makers, diplomats, business leaders, teachers and students to actively contribute to the development of an environmentally conscious society. Bearing in mind that

universities should be, by definition, “universal,” the International University for the Bio-Environment (I.U.B.E.) promotes a model bio-education by introducing interdisciplinary educational reforms on a worldwide basis. Rather than focusing on the award of degrees, the I.U.B.E. acts as a catalyst to accelerate environmental awareness and impart a biocentric message to students and training professionals around the world. Leading educators and decision-makers infuse existing educational institutions with bios promoting values.

An essential part of this effort to making these principles available to as many individuals as possible, is B.I.O.’s e-learning programme, a series of online environmental courses that already attracted the participation of representatives from 119 countries. The goal of these courses is to address the urgent need to improve quality of life and to mobilise each individual to participate in protecting our common environment and its rich biodiversity. By using technological advances in this positive way, a uniquely rich source of information and training material can be placed at the fingertips of teachers, students and professionals around the world.

Bank of Ideas – a catalyst for societal change

The indivisibility of security in international relations should be based on dialogue to attain common goals, dispel concerns, strengthen interaction and exchange among cultures, and promote mutual understanding in international relations.

Owing to poorly coordinated efforts, valuable time and resources are wasted while damage to the environment persists. The knowledge and technology to prevent further destruction are available, but they have to be disseminated more efficiently. An electronic Bank of Ideas, where any interested party may contribute information or thoughts concerning the environment, can promote an expedient transfer of know-how that will help to harness pollution and environmental deterioration and put an end to wasteful and damaging practices.

The Bank of Ideas will not be limited to scholars and experts. Every individual will be invited to make a contribution and to offer their insight and reflections, so as to catalyze societal change and expand the scope of vision and action.

World Referendum – closing the gap between rich and poor

Strong international environmental governance is important in preventing conflict, restoring peace, and building a society that can resist destructive tendencies. With the tools made available by modern technologies, governments everywhere can better focus on the true needs of their citizens. Breakthroughs in the field of information and communication technology provide the opportunity for the public to be actively involved in issues concerning our daily lives and to be able to cast a vote through the internet and other communication link-ups, which can make immediate feedback possible from any corner of the globe. This will allow opinions to be actively expressed, so that politicians will no longer be able to delay or go back on their responsibilities.

It is the purpose of the B.I.O. World Referendum, first proposed in 1991, to transcend national boundaries and bring the world together in a common cause. In today’s complex society, nations seldom share priorities. Climate change and other environmental concerns are possibly the only issues that are relevant to all the nations of the world. Furthermore, environmental degradation and resource depletion are often the impact of extreme poverty on the planet. A simultaneous electronic ballot on

saving bios is a brilliant opportunity to demonstrate that, as citizens of the world, we can all – both rich and poor – agree on safeguarding the Earth for the generations to come.

Decisions on our common future should no longer rest solely on world leaders, who can evade or even obstruct meaningful change. Every individual, whether poor, underprivileged or not, can and should be involved. By giving priority to individual voices to be heard, the World Referendum can elicit the personal involvement of every citizen in the race to save the environment and help to bridge the gap between the rich and poor.

Environmental Olympics

Climate change is occurring sooner than expected. The Olympic Games is a perfect opportunity to turn the world's positively focused attention to the environment and to defend all life on our planet. Teams from all nations assemble to compete in an atmosphere of peace and harmony. Disputes are set aside and everyone savors the ambience of international peace and brotherhood. In ancient Greece, a truce was declared during the games and all hostilities were temporarily suspended.

Yet we should be reminded that the word athletics derives from the Greek term *athlos* meaning achievement, both physical and mental. This Olympic ideal should be expanded in the form of Environmental Olympics to recognize anyone who excels in protecting bios and the environment, be they scholars, labourers, legislators, writers, or farmers. Representatives of any given field could recommend their best candidates, who would receive awards for supporting the environment, constructing new ethics, or creating new values within their professions. Environmental Olympics, with the participation of every individual and every profession can help humanity re-evaluate its priorities and contribute to a global appreciation and protection of bios. At the same time, the world community can be sensitised to the value of a harmonious co-existence as a vehicle for achieving freedom, opportunity, and a better quality of life.

Since 1995, B.I.O. has been implementing "Youth Bios Olympiads" in St. Petersburg, which inspire the young to embrace synergy, cooperation, and peace promoting values through projects in environmental protection spanning all areas of creativity – science, music, dance, the visual arts, etc.

Building a "green" society

Ensuring our planet's health and security is our fundamental responsibility to future generations. A new structure of society and governance is needed to enable us to overcome the current crises. To build a new society of hope, we must influence decision-makers to avoid the mistakes of the past. Technology must become an instrument to protect bios, the most precious gift on our planet and the bond that connects all living beings. A *green society* of security and transparency, where bios is valued over greed and where peace and harmony replaces discord and destruction, can help us understand and value the multiple links between the environment, development and peace.

The clock is ticking. Can we hear it and act now, or will we face the continued decline in our environment and quality of life? The pursuit of narrow self-interest at both the individual and national levels has resulted in a global crisis which threatens global peace as well as the natural environment and human prosperity. We urgently need to change these trends by building a sound society and leading humanity to a

brighter future. A bios-promoting vision that places the ethics of bios at the heart of societal structure can provide the necessary framework to end wars and civil strife and to achieve a world in which the gift of bios is truly appreciated.

The need for action is now. Climate change is accelerating the desertification of areas where agriculture is vital; plant and animal species are disappearing from the earth at unprecedented rates; bio-systems are being degraded; human populations are being displaced and driven to poverty and disease. Humanity can no longer afford to disregard the close relationship between its actions and the environment. Meeting today's challenges requires new ways of stimulating creativity in politics and policy-making, in technology, industry and commerce, in education and the arts, and in social and community development. The widespread adoption of new ethics for a new *green society* is the only way to alleviate instability and conflict and create the pathway to peace.

Millennium of Peace

*Can you hear the gong
resonate the dawning of the new era*

*Can you see the bright stars
send messages of light and hope*

*Can you feel the breathing
of every creature on our planet*

*the waves of love
the whispers of life*

*Can you listen to the beat of your heart
embrace us all with warmth*

*Share the new vision
of joy, peace and harmony*

Agni Vlavianos Arvanitis, 1998

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