

## **BIOPOLIS – AN URBAN DEVELOPMENT MODEL NETWORKING, EDUCATION AND CULTURE**

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### **Abstract**

*With rates of urbanisation increasing and per capita energy consumption on the rise, cities and towns around the world are an important part of the climate change problem, and they can be an important part of the solution as well. Cities represent the most materialized form of society's interaction with the natural environment. As such, an environment-friendly urban policy plays a crucial part in preventing environmental deterioration and in maintaining and promoting bios – all life on our planet.*

*For twenty-five years, the Biopolitics International Organisation (B.I.O.) has been sensitising experts, decision-makers and the local authorities to promote new and innovative ways of achieving “greener” and more liveable cities. The B.I.O. vision for the creation of a “biopolis” aims at environmentally sustainable cities, in which human and natural populations live in harmonious balance, and where culture, education and networking shape the urban landscape of tomorrow in an environmentally responsible manner. This paper explores the fundamental elements of a biopolis and proposes a model for sustainable urban management with the ultimate goal of zero-emission cities.*

### **Building a “biopolis” – restoring nature and culture to the city**

It is evident that the models of the past are not adequate to help us deal with today's environmental challenges. To overcome negative trends, it is time for every citizen to set aside our differences and to proclaim our willingness to save the environment and ensure the continuity of *bios* – life. We do not know of any other planet that possesses this precious gift. Yet human arrogance and destructive policies have prevailed. The time to change is now. Politicians must place the environment as a priority, not because of public pressure, but because of personal commitment. Life-supporting policy – biopolicy – needs to be implemented by every sector at all levels. *Techne* and technology must join forces to help achieve a better quality of life and to provide a vision of hope and joy for present and for future generations.

As mentioned in the Rio Declaration, humanity is entitled to a healthy and productive life in harmony with nature. To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies. Cities, as the economic engines of the world, stand the greatest challenge to providing this service.

Since its inception in 1985, the Biopolitics International Organisation (B.I.O.) has been proposing a coordinated programme in urban management to turn cities into more attractive, healthful and liveable places, providing long-term benefits for both

humans and the environment. Restoring nature and culture to the city would be a great step toward the creation of a true “biopolis,” a city developed in a way that is both sensitive to human needs and minimises negative environmental impacts, by stimulating innovation and social and cultural development. The participation and empowerment of all citizens is vital to the success of any such initiative, as is education and networking.

### **Bank of Ideas and networking**

Changing demographics across the world and the rise of the information age create enormous strain on society, but also valuable opportunities to devise new approaches and strategies for environmental protection. In accordance with the Brundtland Report, which urges States to maintain ecosystems and ecological processes essential for the functioning of the biosphere, as well as to preserve biological diversity and observe the principle of optimum sustainable yield in the use of living natural resources and ecosystems, it is vital to create an environmentally-responsible citizenry.

To succeed in this effort, we have to stop reinventing the wheel. It has been one of the main objectives of B.I.O. for many years to raise awareness of the importance of the development of an internet based “Bank of Ideas,” where any interested party may contribute information and expert advice across a broad range of sectors, in order to help coordinate environmental protection efforts and harness valuable resources. The creation of such an electronic resource would also facilitate an expedient transfer of know-how on ways of responding to environmental challenges at a time of great urgency when immediate action is of the essence before it is too late. In an urban context, the Bank of Ideas can act as a powerful city network, facilitating the exchange of environmental know-how among cities and promoting environmental awareness and appreciation as a shared asset. Moreover, as the Bank of Ideas would welcome the contribution of every citizen, it would offer a global platform in guiding world leaders and policy framers toward more enlightened decision-making and environmental leadership.

City networks supported by the Bank of Ideas can play a vital role in understanding the nature of cities and can provide a number of opportunities to spur economic growth and to promote education, cultural links, social interactions and environmental protection. In addition, city networks can influence urban structure, as well as the quality of internal accessibility, strengthening civil society and raising awareness of our collective responsibility to save bios. Networking between urban centres and academic institutions also ensures skills provision for better cities tomorrow.

The concept of an interconnected city network covering the earth was the basis of C.A. Doxiadis’s vision of an “ecumenopolis.” The biopolis vision for greener and more liveable cities is based on the same optimistic message for a post-political global society. Rather than imagined as urban sprawl, however, the biopolis model is based on universal ideals and values for greener and more liveable cities. As the trend toward increasing urbanisation continues, governments across the globe must support environmentally sound urban policies and initiatives that promote sustainable urban planning and management. The role of bio-education is vital in this context and can ensure placing the environment at the centre of education, which is the catalyst for cultural and social change.

## **Learning in cities – bio-education**

The best way to protect bios today and for future generations is to foster an environmentally aware and motivated community that values and nurtures the environment. This is the goal and vision of bio-education, which promotes environmental protection at the core of every academic and professional endeavour.

Education is a universal right, which all nations in the world must strive to ensure and promote. This duty falls heavily on cities, as the returns to education are vital for the survival of urban areas. Higher educational attainment correlates to increased productivity and innovation, leading to the increased capability of communities to sustain themselves. Conversely, lack of education increases the incidence of poverty and depresses positive social and economic activity.

To be successful in balancing urban development and environmental sustainability, we need to redefine the priorities of education. As a move in this direction, B.I.O. launched the International University for the Bio-Environment (I.U.B.E.) in 1990. The I.U.B.E. constitutes the primary B.I.O. effort to infuse society with bios promoting values. It focuses on the dissemination of environmental education to learning centres internationally, rather than offering traditional diplomas or awards. It is designed as an open and distance learning initiative, whereby leading experts, scholars and educators from 150 countries actively engage in the promotion of environmental thinking. Fighting the trend towards over-specialisation, the I.U.B.E. seeks to open up all areas of study and training to an appreciation of life on our planet. Its extensive e-learning programme offers a multitude of courses online, covering subjects as diverse as economics, urban policy, architecture, diplomacy, history, ethics, science and technology, health, energy and tourism. The I.U.B.E. also urges urban managers to incorporate environmental appreciation in their educational policy in order to ensure that all citizens have equal access to bio-education.

Education serves more than simply as a way to build a more capable community; it also serves as a prime means by which to incorporate people into a chosen identity. Bio-education can help to fortify an environmental consciousness and can be extremely valuable in maintaining an environmental solidarity in communities and in forming the basis for healthy urban societies. In this respect, a programme in bio-education, with the involvement of all stakeholders, can educate citizens and give them hands-on experience in improving the urban environment. It can also create new employment opportunities for “green jobs” in the municipal and urban sector. Such a programme can promote the basic tenets of sustainable urban management, bio-architecture and green buildings, green transport, the expansion of urban green spaces, as well as the enhancement of culture in cities, in order to lead to healthier urban environments for living, working and learning.

## **Bio-architecture – a biological basis for urban design**

To succeed in building the desirable human settlements of tomorrow, it is crucial to consider the biological basis of human perception and behaviour, and the ways to satisfy the needs and demands associated with them. In this context, bio-architecture – one of the foundations of the B.I.O. philosophy – brings out the importance of biological patterns and bio-materials for architecture on different scales and levels of design, while at the same time presenting new possibilities and new scopes in restructuring urban areas, as well as human settlements in general, in accordance with the principles of biopolicy.

The structure of living organisms, their functional elements and the organisation of their communities can provide valuable ideas and inspiration for creating a biopolis incorporating bios models and balanced city planning projects. The concept of bio-architecture can be also considered from a global perspective. Whole cities and city complexes, as well as regional and, ultimately, global urban infrastructure should be designed in conformity to the needs of bios, including both the living and the built environment. Bio-aesthetics – a sister concept to bio-architecture – is also a prerequisite for developing a new attitude towards land use. In order to promote better and more reasonable urban land use, it is essential to evaluate the potential of a given landscape and its characteristic features. Maintaining the aesthetic appearance of the landscape also helps to maintain a healthy and functional environment.

In the effort to achieve healthier, environmentally sustainable and aesthetically pleasing cities, urban areas can also be made more liveable through the provision of green spaces. These outdoor spaces are not only valuable for their aesthetic qualities; they also have environmental and health benefits that improve the quality of our lives.

In all walks of life, green spaces draw people outside and foster social contact. They introduce the natural into the urban environment, and provide a refreshing contrast to the harsh shape, colour, and texture of buildings and paved areas, by serving vital environmental and ecological functions. They also foster a connection between community residents and the natural environment that surrounds them, thus allowing for a more liveable city, an essential element for a sustainable community. This is an especially significant contribution when the built environment encroaches on natural areas.

### **Urban regeneration – greening buildings and transport**

Any comprehensive attempt to improve the quality of the urban environment must include the building and the transport industries. Progress is being made in a number of areas, from construction materials and the improvement of urban mass transit systems to recycling and to the promotion of alternative transport modes.

With buildings being the largest consumers of energy worldwide, green buildings constitute a way to dramatically conserve energy and to contribute to a healthy internal and external environment in numerous ways. The greening of buildings, which makes both environmental and economic sense, constitutes the predominant trend in contemporary architecture. Green buildings preserve the integrity and natural features of a building site, use green materials in construction, provide appropriate landscaping and are equipped with energy-saving appliances. The benefits of building green include cost savings from reduced energy, water, and waste, lower operations and maintenance costs, enhanced occupant productivity and health, and improved urban environmental quality.

A similar challenge for transport policy today is to contribute both to solving traffic congestion and to reducing the demand for fossil fuels. To cope with looming climate change threats, transport policy should not only contribute to pollution prevention but also to pollution clean-up. In this way, cities would become champions of energy efficiency and renewable energy.

An environmentally responsible transport policy promotes alternative fuels, advanced technology vehicles, fuel blends, increase fuel economy, and the use of hybrid vehicles. With hydrogen fuel quickly becoming the answer for the future, by promising zero emission technology, hydrogen producing algae beds in cities could

contribute both to clean energy production, as well as air purification through photosynthesis.

Energy efficient public transport and local transport networks should also be developed, as they are vital to social cohesion, particularly in urban areas with concentrations of mobility-deprived groups, such as low-income families, the young and the elderly. The goal should be the provision of a multi-modal transport system, which reduces energy demand and greenhouse gas emissions, improves safety, protects the environment, and helps to mitigate climate change. Increased public awareness of the consequences of daily travel behaviour and the choice of transport modes on climate change and energy consumption is also of the essence.

### **Bio-culture – inspiring the human/environment nexus**

Culture is an essential element of a sustainable city. The environment is affected by our culture, which is, in turn, shaped by the environment. Bio-culture represents a conscious effort to reach this interdependence. Aesthetic values, music, science, the arts, politics, and economics, can all come together in the struggle for a better quality of life. Bio-culture in the city can provide the needed momentum and life-supporting policies to contribute to the more efficient implementation of sustainable urban management.

On a collective level, the incorporation of culture in nature benefits the health of an entire society. Thus, it is imperative to have comprehensive policies for the built and natural environment that support a dynamic expression of the culture-environment continuum. While there are many ways in which this relationship can be expressed, it requires the contribution of all members of society in order for this expression to be fully realised and successfully sustained.

B.I.O. has always stressed the importance of the cooperation of technology and culture in the race to save the environment and achieve a better quality of life. The study of biology and the revelation of the stunning features and hidden mysteries of life, can surely serve this purpose. Already painters have peered down the microscope to discover a completely new world of existence. The unravelling of the microcosmos – the world of the living cell and sub-cellular structure – provides unlimited sources of inspiration for artistic expression at all levels, be it music, sculpture or poetry. The incorporation of aesthetics in our built and social environment can dramatically improve and uplift many dimensions of our lives at a precarious moment, when our planet's environmental wealth, health and future are at stake.

While nature is imbued with natural aesthetic qualities, incorporating an aesthetic dimension into the prosaic aspects of our every day lives – within the home or school, commute to work, pursuit of recreational activities – offers fertile ground for the development of bio-culture in cities. One way this fruitful relationship can be capitalised upon in cities is through the enrichment of public spaces, parks, walkways, buildings, airports, markets, etc., with works of art. Public and municipal authorities can be instrumental in making this happen, by providing artists with opportunities for research and development, and by encouraging cultural and recreational activities and initiatives.

Urban design elements can contribute to individual expression and, when combined skilfully, become a visually uplifting experience. Local award competitions can be held to demonstrate public appreciation for visually pleasing outdoor spaces, impart a sense of pride to the developer, and stimulate creative thinking and energy. Public acknowledgement can also lend a sense of prestige while drawing attention to

aesthetically inspired experiences of public life. News coverage and award ceremonies can also motivate others to emulate these efforts.

Artists can also play an invaluable role in the regeneration of deteriorating city neighbourhoods and abandoned sites, integrating an environmental and cultural sensibility into local planning and design throughout the redevelopment process that also preserves a sense of regional identity and helps to rejuvenate the urban landscape. The incorporation of ancient legends and materials in present day development initiatives can carry significance for both local residents and visitors, helping them reflect on local symbols and stories that carry universal meaning. Songs, dances, poetry, storytelling, can be used to celebrate the local culture, raising the profile of the natural and cultural heritage of the area. People can be encouraged to draw from the inspiring cultural value of bios in order to satisfy new artistic aspirations and demands, so that doing good to the bio-environment can become part of our culture and everyday lives.

### **Defence for bios – a new urban development model**

Security threats are growing worldwide 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.

When B.I.O. was first launched, 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 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.

Cities have not been immune to the spreading environmental and economic crises, which are leading to increased insecurity. The safety and security of cities depend on understanding urban problems and addressing them in a concerted manner. The urban population by its very nature is heterogeneous, socially, economically, and culturally. The most important requirement for safe city life is inspired and efficient urban governance. An urban development model based on environmental protection, the curbing of unemployment through the creation of green jobs and green salaries, education, and intercultural dialogue and cooperation can help to prevent conflict, restore peace, and building a society that can resist destructive tendencies.

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. 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 respected and promoted.

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.

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Authors' Note: All of the above references are available electronically at [www.biopolitics.gr](http://www.biopolitics.gr)