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ECO-DEVELOPMENT AND ENVIRONMENTAL SPATIAL PLANNING

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ABSTRACT

Development is directly related to the spatial planning (regional and urban). Nowadays, humanity faces a multidimensional crisis, socio-economic crisis, cultural crisis, which is directly related to the environmental one. In the last few decades, the current development model has been questioned by international organizations and scientists of various specializations. Sustainable development or eco-development approaching interdisciplinary the problem explores the exit from the socio-economic and environmental crisis. The purpose of this study is to comprehensively examine the contents of eco-development and to express it in simple words, so as to be understood by people. In particular, it aims to review and clarify the concept of eco-development, defining its content in its entirety, considering it together with the role of spatial planning (regional and urban) and suggesting methods of organization of society, to provide better quality of life and achieve the exit from the crisis. A need to create a new model based on the concept of ecosystem arises from the research, where the laws of nature and culture of each place will be seriously considered in formulating development policy. A key-element for ecological spatial planning is the carrying capacity of ecosystems. The aim of spatial planning appears to be the sustainability of natural systems in order to be able to sustain and supply the anthropogenic systems, meeting the 'real' human needs. For the implementation of these and the exit from the crisis of utmost importance the role of education is highlighted in creating active citizens, who are required to undertake, through self-organization [1, 2], to promote eco-development and eco-design.

KEYWORDS:
eco-development, environment, spatial planning (regional, urban)

INTRODUCTION

Considering development in relation to the environment, new parameters come into existence hence giving birth to the terms sustainable development or eco-development. New dimensions and parameters are embodied in the bond between production's organization and environment. Production ought to be organized in such a way to minimize the environmental impact. Scientific knowledge focuses on the definition of "crisis" and the strategy needed to overcome this phenomenon. Development and strategic spatial planning have become a global challenge. The present paper addresses the issue of development and spatial planning to respond comprehensively to the need of another culture and society that establish new principles and relationships between people and between them and the environment.

The overall objective is reviewing earlier, classical and contemporary reports from literature to propose a comprehensive concept of eco-development content, the adoption of which by active citizens will lead to the choice of development and design practices for a better quality of life.

In conclusion, the ecological speculation sets new parameters for the development and spatial planning which should be incorporated into all fields of human expression and activity. Environmentally conscious citizens [3, 4] should assume the role of the ecological transformation of society.

MATERIALS AND METHODS

The methodology used is based on an extensive review of the literature, the essential classic theoretical texts and modern references. Moreover, it is based on a personal experience accumulated through the participation in research programs about eco-development and environmental spatial planning.

From Conventional Economics To Eco-Development. Development evolves over time as it is a concept with ideological content. It is a system of values that reflects the dominant perception. Thus, the term "development" was post-war identified as "growth" and "industrialization", while the more appropriate measure of its fluctuation is considered to be the gross domestic product that incorporates exclusively the sizes that have monetary values and are exchangeable.

The ceaseless exploitation of nature and man (by man himself) and continuous squandering of

irreplaceable raw materials gave rise to a fairly unstable socioeconomic system [5, 6, 7]. Growth without limits combined with pure consumerism has created the financial debt [7, 8]. The debt crisis requires development. Nevertheless, the wrong way with which development is planned leads on one hand to poverty and degradation of society and on the other disability to clear the dept [8, 9, 10]. Economic crisis may trigger of reconsideration of the concepts of development and active citizenship [10, 11].

Nowadays, ecological consciousness turns into law of the state, interstate agreement, Agenda '21, Rio etc. after numerous ecological disasters at local and global levels. The vision of a "different" development, such as local, endogenous, alternative, eco-development, integrated, sustainable, viable etc., emerges dynamically in theory, but diffidently in practice, aspiring to lead mankind to the "only" way out of the ecological crisis. The prevalent conditions of this "different" development are "sustainable" and "viable".

Viable development [12] gains scientific consensus and is described as the development that meets the present needs without compromising the ability to meet the needs of future generations. "Sustainable" has more to do with management of renewable natural resources. "Eco-development" [14] is a more illustrative and comprehensive term of this "other" required development.

Every human activity affects the environment, while at the same logic the environment largely determines development. Before the industrial revolution, the intensity and extent (scale) of the impact of human activity was relatively limited. The progress of industrialisation brought to light the complexity of the relationship between man and environment and the decisively detrimental human impact on the environment. The profound exploration of nature highlighted the need to utilize the systemic approach for its study, focusing on the structure and dynamics of environmental factors. An integrated and comprehensive approach that focuses on the interdependence of subsystems replaced the piecemeal approach on the part of the individual sciences. As mentioned above, the growth without limits was oriented towards quantitative increase, whereas in any revolutionary activity the restrictions are set by nature.

Ecology analyses the structure of ecosystems [15] in conjunction with human activities and their interdependence and defines the limits and the environmental aspects that should be taken into account in development and spatial planning. It therefore seems necessary to integrate environmental aspects into every human activity. Thus, the formulation of development policy in all areas of production based on the principles of ecology should be sought.

Moreover, many scientists and intellectuals [5, 16, 17, 18, 19, 1] stand up for the expansion of the concept of development, which embodies the concept of community. This will contribute to the development of social relations by creating the conditions for the completion of man and his internal cultivation. The views of K. Kastoriadis, M. Bookchin and A. Gorz [20, 19, 21] for the development of human and social relations are of particular interest concerning the development. So, connecting the individual opinions of scientists and thinkers, there could be a 'new' definition of the content of development, which will include: 1) human culturing, 2) cultivation of human relationships and 3) development of productive relations [22]. Consequently, development primarily contains the cultivation of both man and his relations, in which national culture and tradition are the key-factors, while evolution of productive relations is defined within the concept of ecosystem's bearing capacity according the laws of nature.

RESULTS AND DISCUSSION

Eco-Development. In accordance with the ecological scientific knowledge, today's development strategies are proved to be devastating for the limited natural resources and the necessary balances for life's persistence. The causes of the crisis are detected in the structure of the productive mechanism. As a result, structural transformation of this mechanism addresses the problem. Eco-development is a good strategy to control and overcome the ecological crisis [23]. All countries need to endorse the values of eco-development. In this way, those who advocate for growth will react. Furthermore, the abandonment of consumer eudemonism and temperance in consumption of natural resources stand out as a tough venture. Environmental education [24] owns a key-role in this attempt and basically aims to create morality. Moral people will contribute to take a turn for the consumption pattern and lifestyle that will lead to development. Cultural tradition also forms morality. Conclusively, every country ought to establish a framework for the coexistence of man and the ecosystem in which freedom, culture and human personality will evolve.

According to an extensive literature research, it comes out that the structure of space and the natural environment, which should be taken into account in every level of decision making, are a constituent part of development. Culture, tradition and internal moral values are also incorporated in the concept of development. As a result, the laws of nature and national civilization distinguish an alternative content of development, eco-development.

In line with the above [20, 19, 6, 22, 21], eco-development is specified as a new equilibrium

between man and the environment that suggests management of natural resources in accordance with the laws of nature (use and not abuse) and includes national culture and tradition, as well as internal moral values [22].

Eco-Development And Integration Of Environmental Policy On Development. "Resources" refer to tangible or intangible items that man uses in order to improve the quality of life. There are natural resources and those that derive from human activities. Natural resources are divided into renewable, such as water, air, sunlight, forests etc. and non-renewable, such as minerals and fossil fuels. Renewable resources are notoriously subject to degradation by irrational human activities. As a result, sustainable use of natural resources must be planned [25, 26].

Each country could set a framework of ecological applications so that: a) the scientific knowledge of ecology will be integrated in all productive activities. Ecological factors of local ecosystems, which are biotic and abiotic (e.g. soil, light, climate, water resources, species of fauna and flora), determine the type, content and size of the productive activities that will be developed in them. For example, the soil's geological history and evolution, the layering of materials and texture of each layer and inter-relation between soil and water in conjunction with the climate will determine the types of physical organisms that will appear and develop in the region. The bearing capacity of the ecosystem defines the maximum level for quantitative development of each activity, b) Culture and tradition will sustain, evolve and turn into key-elements for human cultivation, development of special forms of communal organization and production. The cultural tradition of each country shows off its identity by highlighting its cultural diversity, which is essential to maintain a cultural diversity at a global level [22].

Agriculture takes advantage of two natural resources: soil and water. Misuse of these resources contributes to soil degradation and pollution of water. For this reason, establishment of ecological agriculture is essential. Ecological agriculture respects nature and its ecological balances. Nature with the fauna and flora is considered to be a living, closed, self-preservative and recyclable ecosystem. Moreover, ecological agriculture correlates traditional cultivation of land with scientific knowledge, respects nature and the developed mild technical means and creates new jobs [27]. Ecological methods of cultivation [28] and plant growth ought to be utilized in restructuring of crops [29]. This process demands a thorough study to specify the natural conditions of the area (quality and topography, climate, aquatic resources etc. and must be combined with the internal needs of each country's food sufficiency and raw materials for the food industry [22]. The harmonious co-existence of agriculture and farming is reckoned as a crucial factor. Animal waste could sometimes serve as fertilizer, while the free grazing of animals in selected places will provide countries with healthy livestock. Ecological livestock will contribute to revival of mountainous regions. Ecological forest management [30] with respect to the environment will achieve additional benefits mainly in mountainous regions.

Development of adequate agricultural crafts and livestock industries in a cooperative basis [31] will contribute positively to the rural national economy, while the countryside will be regenerated by work force.

In manufacturing sector, measures should be taken for the sustainable use of space such as: concentration of manufacturing activities in specific areas, saving of space and energy in industrial facilities, cooperation of units to exclude wastage, efficient management of liquid and solid waste and use of renewable energy (solar, wind, geothermal, biomass). Moreover, the manufacturing sector should support and promote local products. In energy sector, it is necessary to exploit and use environmentally friendly forms of energy [32] and develop bioclimatic architecture [33, 34] for the protection of the environment and strengthening of the battle against unemployment. Transfers should be addressed under some approaches such as: reduction in traffic with sophisticated technological means, promotion of the means of transport which save space and energy. There should be a shift to sustainable transport [35, 36, 37]. Development and dissemination of modern forms and networks of telecommunications, transmission of information and service (telecommuting, telemedicine, distance learning etc.) could keep population at home contributing to balanced development. Tourism should also be approached with a sustainable point of view. So it should be grown changing lifestyles and encourage alternative forms lenient tourism [38]. Under these circumstances, changing of lifestyles and encouragement of alternative forms of tourism appear to be the key-factor. A sustainable approach to tourism is attempted through the establishment of the concept of capacity of tourist destinations. Tourism must be developed within the framework of the tourist bearing capacity of each region, highlighting the local culture and productive economy [39] as well as sparking the robust local development [22]. The ecotourism experiment in the National Park of Abruzzo (Apennines) is worth mentioning as a contemporary example of implementing alternative tourism.

Every civilized state must provide full coverage of health services. With regard to education [40], active citizenship ought to be the first priority [41]. Education should contribute to direct society towards new or forgotten moral values such as the

respect for life and nature, the simplicity and thrift in the use of natural resources, the peace and justice in human relations, the quality of life etc. Environmental education plays the key-role in the required ecological transformation of society. Each country should develop, evolve and promote its own material and immaterial culture.

With respect to the residential area [42, 43], the two main ventures include the avoidance of over-concentration of land population in urban centers and the strengthening of medium and small urban centers. Yet each country must bring into light their historical and traditional settlements and monuments, which are the best examples of their cultural heritage. Conclusively, it is stated that eco-development policy should be promoted through the gradual integration of planning procedures, sensitive resource-management programs, establishment of strong economic incentives and disincentives, starting initially from local and proceeding progressively to regional and national levels.

A modern example of eco-development is the area of Anavra in the mountainous Magnesia, where residents enjoy high incomes and quality of life, which can be compared with the rich Switzerland.

Environmental Regional And Urban Spatial Planning. "Planning" refers to any form of organization, arrangement or settlement of natural or man- made space and is usually characterized as "spatial planning". It coincides with environmental planning, having almost the same content as that of the environment [44]. For this reason, management and organization of space is similar to management, protection and enhancement of the environment. The concepts of "space", "environment", "planning" and "development" are functionally and organically linked. The actual correlation of these conditions leads to practice environmental and spatial regional and urban policy [45, 46, 47] and imposes a uniform study and programming [44].

In regard to organization and planning of production and other spatial relations, development should be targeted towards sustainability of natural ecosystems, whose vital strength must be maintained in order to sustain and feed anthropogenic systems [42]. In case of a harmful feedback, anthropogenic systems (deprived of energy) inevitably subject to entropy and decay. Therefore, all man-made systems must be planned and operated so as not to jeopardize the sustainability of ecosystems. Natural environment should be fully protected [22].

Environmental Regional Planning. Eco-development is achieved through comprehensive arrangements, known as integrated national, regional and local plans. Such plans embody both the economic, social and cultural development programs and also the regional dimension. Hammering out such schemes ought to take into account the compatibility of land uses and the particular physical characteristics of each region, the compatibility of land uses themselves so that there will be no conflict of uses, the bearing capacity of the study-area, the delineation of protected areas, the determination of development and uses etc. These data are already embedded in a political, sectorial eco-development. The space, with its natural features, functions instrumental in the content of development and planning of land uses [48]. As a result, eco-planning is obliged to count in:

1. Rational control of land use, according to the bearing capacity of each region.
2. Protection of non-renewable and sensitive natural resources.
3. Avoidance of conflicts or arrangement of the pressures occurring on development of a region.

Regional planning should refer to all three levels (national, regional and local) in accordance with the principles of eco-development. The objective of "green" regional planning is to meet the local needs [49] with full respect for the laws of nature. For this reason, mapping of the existing space is proved necessary (soil type, microclimate, quality and quantity of water etc.) so that planning better answers to its management.

A planned eco-development in countryside could:

1. Initiate the ecological planning of habitats already protected by international treaties [50], while the protective legislative regime is extended to a number of valuable habitats which are not recognized and defined through national planning.
2. Restore ecological balance in places where there is already disrupting ecosystems.
3. Start a gradual ecological productive transformation in the rest area combined with political support, when necessary.

Planning of a region takes into account the best current and future uses of natural resources through the integrated ecological concept of growth [22]. Modern and comprehensive analyses of physical parameters are proven to be essential for the determination of potential and physical limitations of a region. Physical characteristics will define the types of ecological agriculture, the size of production and finally the areas in terms of land use where agriculture will be developed. Livestock production develops in selected areas with ecological criteria and within the limits of stocking of each region.

Eco-tourism must be developed within the limits of the tourist bearing capacity with respect to local customs and culture [39, 51]. Alongside it must triggers robust local development. The same rule applies to the other productive activities. Generally, the preparation of a proposal for a land use in a region should be based on good knowledge of local physical parameters and constraints of soils, terrain, water, climate, ecology, flora and fauna, bearing capacity etc. The natural environment of each region provides the relative socio-economic environment

with: a) natural resources for the development of productive activities and b) recipients for the disposal of waste of productive and consumption human activities. Spatial planning, which is in close relationship with eco-development, divides and coordinates productive and non-productive activities of anthropogenic systems and adjusts the intensity of their operation, so as to exclude reduction of natural capital [46].

4. With regard to the emergence and development of cultural heritage, it becomes necessary to draw up an inventory (monuments, architectural ensembles, settlements), to restore them immediately and to initiate them functionally into modern life. Eco-development and spatial planning should reflect all these elements that define the cultural identity of a nation. The emergence of the culture of each area forms the second key-element of eco-development.

Environmental Urban Planning. Ecology presupposes and entails direct democracy [52] and mild growth [53]. The small residential unit fits better to human scale and democracy. Nevertheless, it has become clear that neither the very large nor the small housing units are viable. Aristotle mentions that there has to be a measure of the city's size and the criterion for finding that measure is detected in the city's self-sufficiency. Furthermore, "green" urban planning [22, 44, 54] ought to express and satisfy the material, social, spiritual human needs, the needs for culturing human and his relationships [40], as defined in the cultural model of each country, while spatial organization of production and productive activities should respect the laws of nature [22].

In residential areas the directions include:

1. Immediate protection of cultural heritage [22, 54]. The traditional settlements that reflect the urban expression of Greek lifestyle should be the residential conservation cores of rich cultural heritage. Historians and traditional cores [55] have the same role in cities. It's what best in the country as a model settlement pattern of the Greek way of community life, whose elements must be indexed in contemporary reality to continue to exist.

2. An urban policy being inspired by ecological concepts. Such policy should aim at two main directions:

2.1 To integrate each settlement (as a system) in a broader ecosystem [1, 42, 56] which supports it in order for: a) the wider environment to absorb the various forms of pollution. Its waste ought to be integrated into the biogeochemical cycles of the broader ecosystem. b) The nutritional and energy needs of residents [49] to meet as fully as possible from the wider environment within the limits of its bearing capacity [57]. To achieve this goal specific management and application studies are required, providing gradual transformation of production.

2.2 To undertake an internal ecological restructuring of urban planning in order to: a) Maintain and promote cultural heritage with immediate restoration of historic cores [55] and historical monuments. b) Conduct rehabilitation studies [58] of all degraded areas and effort application. c) Plan the new expansion areas according to ecological planning concept. d) Convert the parish-neighbourhood into the lower unit of communal organization [56] in accordance with the principles of cultural tradition and the principles of scientific ecology and targeted towards on-site coverage of the basic material, social and spiritual needs of parishes - neighbourhoods. The culture of each country gives its own connotation to these basic human needs.

The neighborhood attracts international ecological problem which suggests community life [5, 16, 17, 18, 19, 20, 1] in response to the estrangement and alienation of local residents [4] with each other and with space. Each parish-neighbourhood must have a church, school, clinic versatile, full social and technical equipment [59], playgrounds, parks [58], sports venues, shopping centre, equipped building workshop, self-managed restaurant, friendly meeting rooms, hostel and any others places that could offer positive amelioration in the quality of life. Caring for lonely elderly, sick people or people in need ought to be undertaken by the same parishioners as practical love demonstration towards them. The organization of life in the parish-neighbourhood will always offer creative surprises in terms of the improvement of quality of life through the spirit of creative love that fosters the genuine tradition of each country. e) In terms of the cities, there should be competence of local government that will serve the needs of citizens such as finding a job or hosting persons in need. This entails the creation of hostels for economically weak people for as long as they are in real need, office of local self-administration for addressing unemployment etc. f) In a society ecologically transformed the central housing problem should be addressed through efficient government policy within the competence of local government (aided by the state). g) Creation of green networks [60, 61], open spaces [62], cycle paths, ecological parks etc. consist a part of the ecological transformation of the city and full coverage from the above mentioned needs (education, welfare, health) at municipal level.

Transformation of the institutional framework of spatial planning and urbanism should accompany the above policy (regional and urban).

Legislative Framework. At international level, but particularly in the context of European legislation [63,64], laws that deal with issues such as the application of the principles of sustainable development (organic farming, sustainable transport etc.) can be identified. The community policies for

sustainable spatial development are of particular interest [65, 66, 67, 68]. However, their application, with few exceptions, does not take place because the change in policy, adopting the principles of sustainability, raises enormous existing economic interests. The most important of course is that there is not formed ecological conscience by the rulers, by administrations and citizens, to consciously proceed to the changes required to implement these policies.

Focusing on the Greek area important was the effort that began after the 80s. The Residential Law 1337/83, in which there is extensive reference to the importance of the neighborhood and the socio-technical infrastructure and the Law 1650/86 [69] for environmental protection are worth mentioning. After '95, Law 2508/97 [70] "Sustainable urban development of the country's towns and villages and other provisions" and Law 2742/99 [71] "Spatial planning and sustainable development and other provisions" promote sustainable development through spatial planning and give guidelines for sustainable urban development of cities and country villages. They are very important laws that incorporate sustainable development policies, although do not clearly give its definition. However, despite the existence of these spatial policies that were adopted and incorporate environmental aspects of policies, their implementation presents particular difficulties for the same reasons mentioned above.

The situation changed radically in Greece with the advent of the support mechanism of the International Monetary Fund (IMF) where a manipulation attempt to adapt the institutional framework design according to the requirements of the IMF is observed. This occurs with the enforcement of applicable laws of the loan agreements [72], which are presented as a "restructuring" lever of Greek economy and society [73]. A society that seems to move in a liberal direction. Indicatively, the Implementing Laws 3986/2011 and 4046/12 [74] are mentioned. With their enforcement the reduction of the state and the privatization of public property were a key priority.

Therefore, it is observed that with the advent of IMF the institutionalized spatial policy leaves the dimension of public benefit [75], of social acceptance and environmental protection, objectives which were adopted by the hitherto laws (Laws 2742/99, 2508/9). The legislation put forward as a public benefit the assignment procedures and public nature areas [76, 77, 78] on private initiative for large investments. Environmental costs [73] in this case translates into "social benefit", while in fact it is a social cost. The new planning framework is launching large-scale redevelopment projects such as the Greek and Faliron bay alongside exploitation projects of resources, favoring specific business interests usually against the local communities. In this way, the privatization of public land [79] planning is promoted to service the debt and thus the privatization of the design itself [77, 80].

The new regulations, essentially form a second system parallel to that of statutory spatial planning system and building control, while are promoted with emergency procedures to bypass together with constitutional principles any social resistance. The fast track policies [81] are indicative based on Law 3894/2010 [82] "On fast track investment strategies" and later Laws 4072/2012 and 4146/2013 "to shape friendly development environment", which circumvent environmental legislation and the official spatial urban planning. Since the attraction of investment funds, is acclaimed as the best interests, environmental and social cost of the projects enters into the background, even ignoring international conventions ratified by our country.

Something similar happened in the case of Latin America and Africa during the decades of '80 and '90, when the Structural Adjustment Programs (SAPs) implemented by the IMF and the World Bank [83]. The result of these programs (SAPs) was the seizure of land in the countryside [84, 85], the collapse of urban infrastructure, the rapid increase in unemployment, the reduction in salaries and the seizure of houses.

Since, then, this design fails it becomes obvious that the economy cannot be designed without regard to society. However citizens, given the current situation and conscious of their marginal position in the design, distance themselves from the project and public space. The city losing its citizens is degraded and converted into an exclusive field of speculation. The development needs active citizens and the university may contribute to this. The human resources and the university community should be utilized and contribute to development planning through research. A planning that will be based on the study and display of spatial and social groups and local grids, in urban and regional level. The development and planning should be considered in the light of socio-economic, political, cultural and historical processes starting from small scales [86, 87] and passing into larger administrative divisions. The aim is to improve the quality of life, protect the production base, the natural and cultural heritage. The need now to line up in urban or spatial planning (entrepreneurship) an urban or spatial planning of public utility [88] is immediate and urgent, and a university that honors his character could serve this.

CONCLUSIONS

"... Behold my brother; we've learned to chat quietly,

quietly and simply.

We understand each other now, we need no more ...»

Y. Ritsos - Smoked Pot

The lyrics of the poet Y. Ritsos are always valid. The purpose of the paper is to simply define the concept of eco-development and environmental spatial planning. Conclusively,

1. Development should refer to: a) Cultivation and inner-culture of every man b) Establishment of social relations as authentic forms of community life and c) Establishment of productive relations within a dynamic coupling of traditional forms of production with the benefits stemmed from modern scientific and technical knowledge, according to the principles of ecological knowledge.

2. The set of ecological parameters consist the two components of development and planning: The culture of each country contributing to human cultivation and development of human relationships and affects the interrelationship between human and nature and ecology which contributes to the development and planning of productive sectors. Eco-development and spatial regional and urban planning interact in urban level and as far as land use is concerned.

3. Regional and urban spatial planning organizes the development activities in space. Physical space interferes decisively in the development process and define the physical parameters which must be respected by man in a harmonious civilization dialogue (as a way of life) and nature (laws of nature) [22].

4. Science always precedes legislation and should in simply words be presented to the citizens.

In conclusion, it is mentioned that for the exit from the crisis, for the ecological transformation of development and planning, active citizens with ecological conscience are needed, to undertake through their self-organization [87, 22] the implementation of eco-development principles and environmental spatial planning. The higher educational institutions are invited to play key role in ecological education with their respective general scientists.

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