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PROGRAMME FOR INTEGRATED COASTAL ZONE MANAGEMENT: THE CASE OF THE CYCLADES (PICAMCY)

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1. ISLANDS: A SPECIAL CASE FOR ICZM

The Program for "Integrated Coastal Area Management: the case of the Cyclades" (PICAMCY) was launched in January 1997 and was completed in December 2000. It was the only program, among all European Demonstration Programs for Integrated Coastal Area Management, studying an *island complex (Cyclades)*, consisted of the following islands: Anafi, Donoussa, Thira (community of Oia), Ios, Kimolos, Koufonissia, Milos, Paros, Serifos and Sifnos.

Islands are fragile ecosystems where a delicate balance exists between environment, economy and society. They present a special case for coastal zone management and it is widely recognized that islands are priority areas for action and that a strategy for sustainable development is necessary with focused and concerted actions at all levels: local/regional, national and European.

Although there are great differences in terms of characteristics and context of development, there are certain common issues and problems that indicate the need to give special attention to islands, particularly small ones. Such issues relate to the relationships between economic growth, social coherence and viability and environmental management, in terms of dependence, self-sufficiency, isolation, peripherality, diversity, risks and fragility. In particular:

- Limited natural and human resources impede the development of several activities. Furthermore, the narrow economic base provides limited opportunities for local employment, while the dependence of local economy exclusively on a single economic activity has resulted, in many cases, in major problems, when due to some kind of external coincidence or change, this activity was proved economically unprofitable, resulting in severe impacts on the economic and social structure.
- Limited natural resources, coupled with intense pressures, have often led to overexploitation of resources or to their abandonment. Exhaustion and degradation (salinization) of water resources due to increasing demands for agriculture and especially for tourism is a typical example of overexploitation. Furthermore, in many islands, overgrazing and overfishing have resulted in the deterioration of terrestrial ecosystems and in the depletion or significant decrease in the fish stock respectively. In many islands the abandonment of agricultural land mainly in terraces, has led to soil erosion. Overexploitation, overgrazing, erosion, land abandonment and forest fires are the main causes for desertification.
- Agricultural land is continuously decreasing, due to increasing demand for tourism and residential development. The lack of an effective land policy further intensifies the situation.

The dynamic correlation of these factors composes a unique grid of environment - development problems, identifiable in most islands. For *islands undergoing rapid development* (such as *Thira, Paros and Ios*), the uncontrolled development of human activities and the weak consideration of local particularities in the design of infrastructure projects, exaggerate environmental problems while threatening the sustainability of these same activities and furthermore eroding long term development prospects. For islands under recession (such as *Serifos, Donoussa, Kimolos*), population decline along with the abandonment of economic activities corrode development prospects and in several cases the quality of environmental resources (abandonment of agricultural activities) leads to soil erosion, desertification and loss of water resources).

Recently, tourism development has served as a means for regional development for the majority of the islands, contributing significantly to their economic development. The rich cultural heritage, the natural and built environment of unique value, their geographical particularity (insularity), attract a significant number of tourists every year. On the other hand, tourism has resulted in the degradation of both the natural and built environment of the islands.

2. THE CASE OF THE CYCLADES: CHARACTERISTICS AND PROBLEMS

The Cyclades represent a unique and diverse group of islands in Greece where the problems of unsustainable growth have become particularly evident. These islands are characterized by small surface area, limited natural resources, rich cultural heritage, a natural and built environment of unique value, limited administrative and organizational capacity, weak access to technological applications and innovation and intense tourism development threatening the fragile balance between economy, society and environment.

The total surface area of the ten islands studied is approximately 790 km² while the total population reaches 29,658 inhabitants (1991). The total length of the coastline is approximately 663,000 km.

Specifically, these islands are characterized by:

- *Limited surface area* ranging between 195 km² (Paros) and 13 km² (Donoussa).
- *Population decline*. Since the 1950s, the population of several islands has decreased mainly due to limited opportunities for employment. Serifos, Sifnos, Milos, Kimolos, Anafi and Donoussa had witnessed a population decline also during the previous decade (1981-1991).
- *Major population fluctuation* during summer months. In Paros, Ios, Thira and Koufonissia, tourism development has resulted in the reversion of population decline and to a considerable increase in the population. It is worth mentioning that during summer months the population increases up to ten times posing significant pressures on the environment.
- *Limited natural resources*: specifically, water resources are inadequate either due to low precipitation which when coupled with geological particularities and increased demand during summer months leads to rather acute problems. The above constraint along with soil erosion and limited land resources further impedes development of the primary sector.
- *Rich cultural heritage*. The islands possess a unique heritage with important archaeological and byzantine monuments, not to mention local traditions and customs.
- *Natural and built environment of unique value*: the islands host important ecosystems as well as endemic species of fauna and flora. The unique architectural style and their traditional settlements are well known, which along with the landscape are considered major tourist attractions.
- *Major deficiencies in respect to technical infrastructure and services*. A critical problem for the development of the islands, mainly of the small ones, is the inadequate communication between the islands and between the islands and the mainland.
- *Limited administrative and organizational capacity* not allowing the effective confrontation of problems and, mainly, of pressures derived from unplanned tourism development.
- *Intense tourism development*: since 1970, tourism presents a major source of income for local communities. Inefficient infrastructure, illegal constructions and ineffective management of visitors' flow comprise major constraints for sustainable tourism development.

3. CONSTRAINTS FOR THE SUSTAINABLE DEVELOPMENT OF ISLANDS

Although island particularity has been widely recognized, it has not yet been possible to adequately address several of their problems in relation to water management, waste management, increased energy demands, transportation and communication networks, etc.

The *lack of policies to capture the islands' particularities*, *insufficient information* and weak dissemination of it, weak accessibility to data and information, weak articulation of sectoral concerns, *lack of effective cooperation among* involved actors and *insufficient coordination* impedes among other reasons sustainable development of the area.

Furthermore, the *adoption of fragmented responses* to urgent environmental problems further impedes integrated coastal area management, especially since a broader and integrated Strategy for the development of islands is still lacking.

Special Spatial Studies (SSS) represent the only type of spatial planning which has been carried out in a systematic way, for several of the islands of the Cyclades. These Studies were financed by European Union Funds. Their main aim was the definition of land uses, the delimitation of zones and building/construction conditions/limits. SSS can not answer satisfactory integration of environmental management issues. Most of these studies have not yet been implemented.

Within the context of the forthcoming 3rd *Community Support Framework* several projects related to infrastructure development like road networks, port and airport facilities, marinas, etc are expected to be constructed in most of the islands of the Region. However these projects reflect a more reactive approach to increased demands and pressures due to tourism development, while a strategic assessment of environmental impacts is still lacking.

Environmental protection is still inadequate due to several reasons among other insufficient institutional contexts, lack of resources, lack of monitoring and control mechanisms, etc. Efforts are mainly targeted to the protection of the areas with high ecological value, which is part of the *Natura 2000 Network*. Coastal ecosystems, landscape quality, environmental resources are under severe threat. However, the main issue remains the lack of integration of environmental concerns in regional and local development and spatial plans.

Furthermore, planning responsibilities are spread among national, regional and local levels, causing severe problems of gaps and overlaps of authority accounting for the inefficiency of the administrative system to respond to problems. The planning system is not flexible, often oriented towards the remedy of past problems, unable to foresee future needs and problems. Co-ordination among different sectors along with the dissemination of information, implementation, monitoring and control mechanisms are yet to be fully established

4. DESCRIPTION OF THE PROGRAM FOR INTEGRATED COASTAL ZONE MANAGEMENT IN THE CYCLADES

The objectives of the program included:

- Strengthening of cooperation and elaboration of concerted actions for coastal area management
- Enhancement of the local capacity to anticipate common environment development problems
- Development of integrated actions to anticipate critical problems
- Provision of support to local authorities in order to encounter environmental problems.

The *approach* followed, for the accomplishment of the above goals included:

4.1. Establishment of an Island Network

As many of the problems confronted by the islands under study are common, there is significant potential for cooperation aiming at a more effective coordination and implementation of planning and management activities for the coastal zone (in all cases coastal zone equals the whole island territory). Through the establishment of the Island Network it was attempted to bring together the representatives of the local, regional and central governments and actors involved in coastal area management, aiming at exchange of information and experiences but furthermore at elaboration and promotion of concerted actions (projects, measures, etc.) for ICZM. The Island Network consists of the

- Mayors and Presidents of local Community Councils of the ten participating islands,
- Prefecture of the Cyclades,
- Region of Southern Aegean
- Counties of Milos and Paros,
- Local Development Agency of the Cyclades,
- Hellenic Ministry for the Environment, Spatial Planning and Public Works,
- Ministry of the Aegean,
- Silver and Baryte Ores Mining Co. S.A.
- Hellenic Society for the Protection of the Environment and Cultural Heritage (NGO).
- The Environmental Planning Laboratory of the University of the Aegean which in cooperation with an expert team provided organizational and scientific support for the operations of the Island Network.

4.2. Formulation of Thematic Work Groups

For an effective organization and operation of the Island Network, the following thematic work groups were formulated in respect to the common characteristics and environment development problems of the islands. Cooperation had been encouraged in each one of the following sub groups while concerted actions had been elaborated on the base of common problems.

- *Anafi, Donousa, Koufonissia*. Very small islands with limited resources and local economies based mainly on the primary sector.
- *Milos, Kimolos*. Islands with intense mining activities and tourism development.
- *Sifnos, Serifos, Milos, Kimolos*. Islands belonging in the same administrative unity.
- *Paros, Ios and Thira*. Islands with intense tourism development.

4.3. Study of critical issues and elaboration of specific proposals

Six sectoral studies for critical issues have been elaborated, specifically for:

- *Tourism development*
- *Sustainable agricultural development*
- *Integrated development of agrarian areas*
- *Integrated water management*
- *Solid waste management*
- *Protection and integrated management of areas with unique ecological value*

The analysis of the above issues contributed to the formulation of a Strategy for Integrated Coastal Areas Management for the participating islands.

Within this context the following activities were pursued:

- Workshops (members of the Network)
- Sub-group meetings (members of the Network and representatives of key economic activities: tourism, mining activities)
- Site visits (non-formal meetings with local decision-makers and other stakeholders)
- Completion of thematic maps and corresponding questionnaires
- Open interviews
- Use of Geographical Information Systems (GIS) and Digital Terrain Model
- Publication of a Newsletter for integrated coastal management issues.
- Preparation of Educational Material (cd-rom)
- Development of a site in Internet for the Program
- Formulation of a "Discussion forum" for the members of the Island Network in the Internet.

5. RESULTS

The PICAMCY program contributed to the promotion of *cooperation* for coastal area management issues, through the development of an Island Network and furthermore to the elaboration of an integrated framework for social and environment - development issues, both in the island and island complex level. Furthermore, through the establishment of the Network it was possible to encourage a *coordinated exchange of experiences and information*, as well as to *formulate actions to anticipate common problems* (i.e. related to tourism development, water resource management, etc). Finally, PICAMCY contributed to public awareness and sensitization of local actors over integrated coastal area management issues through the promotion of several activities (i.e. publication of information bulletin, development of educational material).

Several factors had facilitated the implementation of the various activities such as:

- High level of awareness among decision makers
- Adequate local knowledge in respect to environmental problems
- Willingness for action
- Existing relationships, established co-operation between partners
- The role of the University as a facilitator/ project manager (perceived as a "neutral" partner)

Of great interest is the viability (not exclusively economic) of the Island Network after the completion of the project. It was confirmed by all members of the Network (central and regional administration, local government, private sector, non governmental organizations) that it is necessary not only to assure long term viability of the Network but furthermore to expand its activities, broaden its scope and embrace more islands. Nevertheless, the following constraints must be considered:

- *Lack of experienced and trained personnel* supporting the operation of the Island Network both organizationally and scientifically. Local Councils, especially of the very small islands, confront major deficiencies in administrative personnel. Furthermore, the regional government has similar problems in respect to the administrative and scientific personnel.
- *Weak organizational and administrative capacity* led in certain cases to ineffective participation
- *Inadequate economic resources* ensuring the sound operation of the Island Network in respect to personnel remuneration, purchase of equipment, expenditures, transport costs, etc.
- *Difficulty in the communication* between islands either due to the inadequacy of sea transport or to unfavorable weather conditions.
- *Lack of an appropriate institutional framework* supporting the implementation of decisions made through voluntary processes and generally initiatives for integrated coastal area management. (the new law for “Spatial Planning and Sustainable Development” provides the framework for the elaboration of a *Directive for Coastal Areas* and that is expected to have a positive impact on ICAM)
- *Intense pressures for development* and more specifically for tourism and recreation resulting in intense pressures for construction and resource use while significantly impeding sustainability of agriculture.
- *Weak articulation of sectoral concerns* at the island complex level (i.e. association for rooms for rent) impeding the efforts for cooperation between the islands.
- *Strong emphasis on day-to day problems* -development of infrastructures-
- Island fragmentation (lengthy and costly transportation)
- Lack of technological means (i.e email)
- Strong feeling of uniqueness

Through the implementation of the project for Integrated Coastal Area Management in the Cyclades it has become evident that it is necessary to link long-term strategic vision with action in the short and medium term, to provide concrete examples for immediate action, to establish “success stories”, to provide tangible outputs: maps, cd-rom, to invest in local capacity building (help participants to be able to participate in an effective way) and to balance between flexibility and efficiency and meaningful participation.