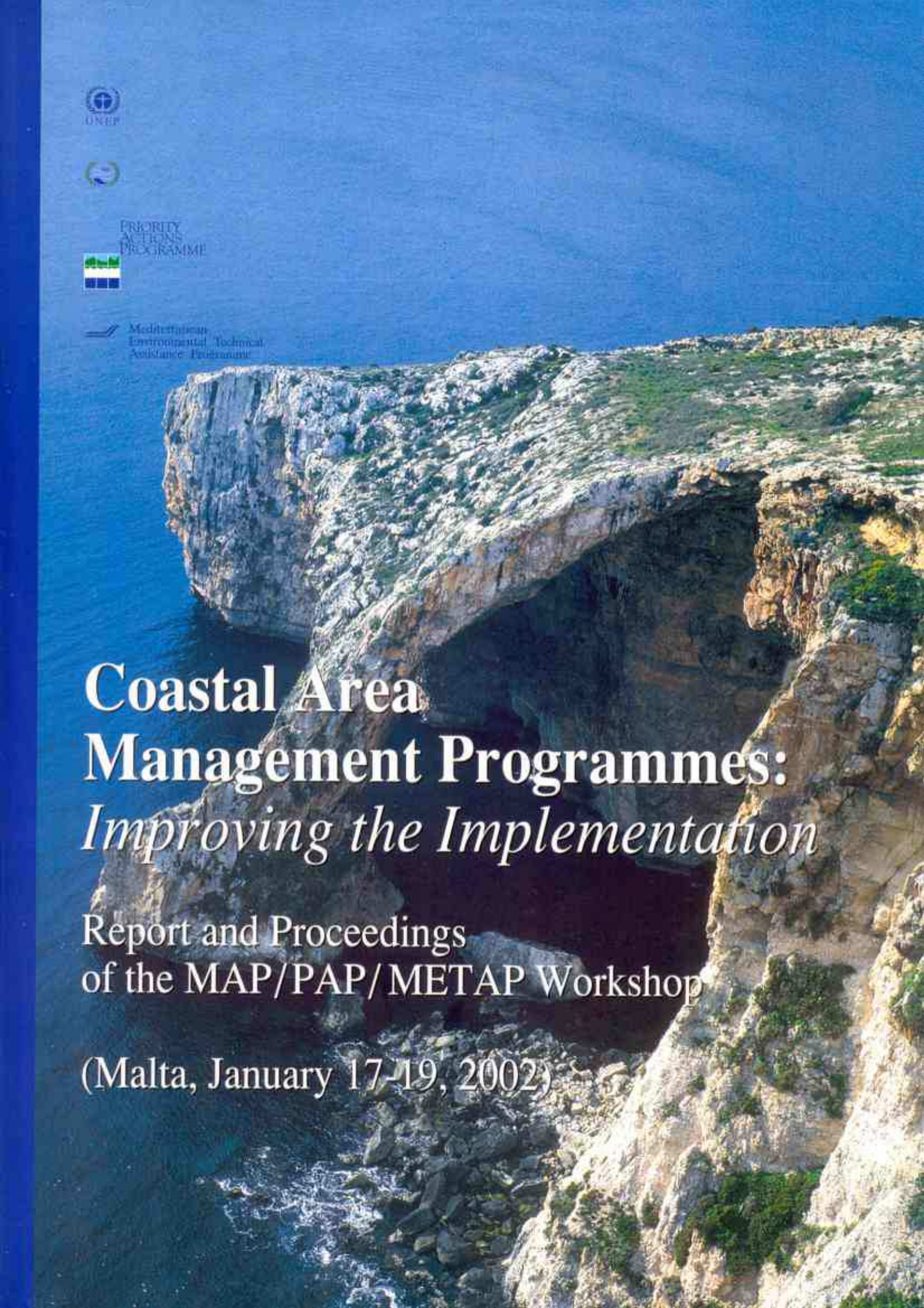

Coastal Area Management Programmes: *Improving the Implementation*

Report and Proceedings of the MAP/PAP/METAP Workshop

(Malta, January 17-19, 2002)

Note:

This publication was prepared by the Priority Actions Programme Regional Activity Centre (PAP/RAC) of the Mediterranean Action Plan (MAP) – UNEP, in colaboration with the Mediterranean Environmental Technical Assistance Programme (METAP). The document includes the report on the MAP/METAP Workshop *Coastal Area Management Programmes: Improving the Implementation*, which was held in Malta (January 17-19, 2002) and its proceedings, including the reports on nine implemented CAMP projects and keynote papers presented at the workshop. During the preparation of the document, the review assistance was provided by I. Trumbic, M. Prem and A. Alm. B. Baric edited the original version of the document in English, whereas the respective translation of the document in French, and the revision of the translation, were performed by Z. Skaricic. M. Brzic and S. Pavasovic prepared the document for printing.

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Preface

This document includes the report on the MAP/METAP Workshop *Coastal Area Management Programmes: Improving the Implementation* which was held in Malta (January 17-19, 2002) and its proceedings, including the reports on nine implemented CAMP projects and keynote papers presented at the workshop.

Coastal area management projects are being implemented in the Mediterranean by the Mediterranean Action Plan (MAP) since 1989 when Coastal Area Management Programme (CAMP) was established. Since then, nine CAMPs were completed. The main objective of the MAP CAMP is to offer assistance to Mediterranean countries in solving urgent environmental problems, and to introduce the Integrated Coastal Area Management (ICAM) as the basic tool to achieve sustainable development at the selected sites in their coastal regions. All MAP Regional Activity Centres (RACs) have been involved in the hitherto implementation of CAMP projects.

The Mediterranean Environmental Technical Assistance Programme (METAP) was launched in 1990 and was focused on several issues in coastal areas. The main objective is to assist METAP countries to strengthen their capacity to deal with the issues in coastal areas. Many projects in coastal areas were implemented, as well. More specific orientation towards coastal area management was initiated in 2001.

Coastal area management projects have always attracted attention, particularly in countries where they were implemented. Pilot interventions at the local level, as they involve many stakeholders and have impacts on the management of coastal resources, are highly visible actions. However, the Priority Actions Programme (PAP) as the responsible RAC for the co-ordination of CAMP projects, is aware of the problems relevant to CAMP projects implementation and is permanently trying to improve their implementation. Therefore, the need to improve efficiency of coastal projects has continuously been discussed at various forums.

Following the above mentioned, PAP/RAC and METAP jointly organised a workshop where the experiences in the implementation of and lessons learned from coastal area management projects implemented so far, were presented. The objective was to discuss how ICAM programmes could be designed, and effectiveness of the implementation of the projects and their follow-up improved to achieve more sustainable interventions and visible improvement in coastal areas. As a result, recommendations for the improvement of implementation of coastal area management projects were adopted.

PART I:
Report on the Workshop

Report on the MAP/METAP Workshop: "Coastal Area Management Programmes: Improving the Implementation" (Malta, January 17-19, 2002)

Background information

1. Coastal area management has been one of the most important activities of the Mediterranean Action Plan (MAP) since the mid eighties. However, the major shift occurred in 1989, when MAP introduced the Coastal Area Management Programme (CAMP). Since then, a number of CAMPs were implemented, namely: in Albania, the Bay of Kastela (Croatia), Fuka-Matrouh (Egypt), the Island of Rhodes (Greece), Israel, Malta, the Syrian Coastal Region, Sfax (Tunisia), and the Bay of Izmir (Turkey). Recently, CAMPs in Algeria and Lebanon have started, while new projects were initiated in Cyprus, Slovenia and Morocco. The main objective of the MAP CAMP is to offer assistance to Mediterranean countries in solving urgent environmental problems, and to introduce the Integrated Coastal Area Management (ICAM) as the basic tool to achieve sustainable development at the selected sites in their coastal regions. All MAP Regional Activity Centres (RACs) have been involved in the hitherto implementation of CAMP projects.

2. The Mediterranean Environmental Technical Assistance Programme (METAP) was launched in 1990 by the World Bank, Environmental Investment Bank, European Union and the United Nations Development Programme (UNDP), and was focused on several issues in coastal areas. Many projects in coastal areas were implemented. More specific orientation towards the coastal area management was initiated in 2001. The main objective of METAP is to assist eligible countries to strengthen their capacity to deal with the environmental issues in coastal areas.

3. METAP has acknowledged the need for ICAM in the Mediterranean Basin. At the regional level, activities related to ICAM have already been planned. These include management capacity building, the preparation of river basin plans and coastal area management strategies, the use of economic instruments, improvements in infrastructure, as well as investment in plan preparation. The evaluation of coastal management initiatives in the Mediterranean region prepared by the World Bank in association with the Priority Actions Programme Regional Activity Centre (PAP/RAC), provided recommendations for future implementation of coastal management projects in the Region, the majority of which stress the role of the national and local levels in ICAM. Based on the experiences of the already implemented CAMPs, MAP-PAP/RAC and METAP are making a joint effort to improve efficiency of coastal area management projects.

4. By nature, coastal area management projects have always attracted attention, particularly in countries where they were implemented. Pilot activities at the local level, as they involve many stakeholders and have impacts on the management of coastal resources, are highly visible actions. Nevertheless, efforts to improve efficiency of projects have continuously been discussed at various forums at all levels of MAP where recommendations for the improvement were adopted. These include Contracting Parties' meetings, the Mediterranean Commission on Sustainable Development (MCSD), and international meetings organised by MAP. It was also the subject of several assessments conducted specifically for these kinds of projects, such as the in-depth assessment of MAP/METAP initiatives, whose results were discussed at the MAP/METAP Workshop on Integrated Coastal Area Management in the Mediterranean (Cairo, June 2-3, 1998).

5. PAP/RAC and METAP jointly organised a workshop where the experiences in the implementation of and lessons learned from coastal area management programmes implemented so far, were presented. The workshop also provided guidance on how ICAM programmes could be designed and implemented to achieve more sustainable interventions and improvement in coastal areas.

6. The workshop was held in the premises of the Waterfront Hotel in Sliema, Malta, from January 17 to 19, 2002. It was organised with the support of the Ministry of Environment of Malta.

Participation

7. The workshop was attended by 66 participants from 19 countries (Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Libya, Malta, Morocco, Palestine, Slovenia, Spain, Syria and Tunisia), including the representatives of all the countries and the localities in which CAMPs had been implemented, as well as the representatives of the countries which are planning to

start CAMP projects in the future. Besides the representatives of PAP/RAC, the workshop was attended by the participants of the METAP projects in this field, the representatives of MAP, MAP Regional Activity Centres ERS/RAC and REMPEC, and other inter-governmental and non-governmental organisations and institutions, such as ENDA Maghreb, Ecomediterrània, Conservatoire du littoral, IFREMER, MEDCOAST, Wetlands and MIO-ECSDE. Complete list of participants is attached as Annex I to this report.

Objectives of the workshop

8. Continuous improvements of local capacities in implementing projects in coastal areas are essential for the success of the projects. This is the reason why a particular importance of the workshop was given to effectiveness of the implementation of the projects and their follow-up. The main objectives of the workshop, therefore, included the following:

- exchange of experience in coastal projects implementation;
- what were the lessons learned;
- what are the ingredients of success; and
- how to improve the implementation of the projects.

For the workshop, a number of reports and documents were prepared, and their list is given in Annex III.

Agenda item 1: Opening of the workshop

9. Mr. I. Trumbic, Director of PAP/RAC, welcomed the participants, and in particular the Minister for the Environment of Malta, and thanked them for attending the workshop. He, then, explained the main objectives of the workshop, pointing out to ICAM as a continuous, proactive and adaptive process of resource management for environmentally sustainable development in coastal areas. He said that many efforts have been made so far in the Region with the aim of strengthening sectoral management, preserving and protecting the coastal ecosystems, and promoting rational development and sustainable utilisation of coastal resources. These efforts have received a lot of acknowledgements, but still a lot has to be done to achieve effective management of the coasts. Mr. Trumbic stressed that this meeting was a result of a joint effort of MAP and METAP to improve efficiency of coastal area management programmes based on the experiences with the already implemented CAMPs, aiming at more sustainable interventions and improvement in coastal areas. It should also be a start of new partnerships towards a better implementation of ICAM in the Region.

Agenda item 2: Welcome addresses

10. H.E. Mr. F. Z. Dimech, Minister for the Environment, addressed the meeting on behalf of the Ministry of the Environment of Malta. After having welcomed the participants to Malta, he stressed the importance of CAMP projects in implementation of ICAM principles, mentioning the CAMP Malta, which is in the final stage of implementation. Mr. Dimech spoke, among others, about the objectives of CAMPs, the need for exchange of experience, assessment of completed CAMPs, and the importance of stakeholder involvement. He also stressed the influence of CAMP Malta on ICAM in Malta, participatory programme, and involvement of public. The project has helped agencies to improve co-operation among ministries, universities, NGOs, etc. He also mentioned some of individual activities, which have formed part of CAMP Malta, emphasising the Systemic Sustainability Analysis (SSA) as a very useful activity, which was introduced for the first time in Malta and would help to better understanding of sustainable development principles. The work on sustainable coastal management was also mentioned as an important activity, as well as marine conservation areas. Finally, Mr. Dimech wished the participants success in their work and a pleasant stay in Malta. The Minister's speech is contained in Annex V.

11. The floor was, then, given to Mr. A. Hoballah, MAP Deputy Co-ordinator. On behalf of UNEP and MAP, and of his own, he greeted the participants and thanked the organisers for their hospitality, stressing, among others, the positive work done within CAMP Malta. He spoke about MAP, whose focus, at the beginning, was on marine pollution but quickly re-oriented to the coastal regions. He, then, mentioned the integrated approach to Coastal Zone Management launched by PAP through CAMPs in co-operation with almost all other MAP components. The creation of the Mediterranean Commission on Sustainable Development (MCSD) was particularly underlined. Mr. Hoballah also stressed that the evaluation of PAP/RAC and Blue Plan Regional Activity Centre (BP/RAC), done in 2001, were very positive, and recommendations to improve the ICAM projects were proposed. Speaking about the CAMP methodology,

which is always improving, particularly by involving other actors, for example METAP, he stressed that a lot remained to be done on the path towards sustainability, and that this meeting was an occasion to assess what had been neglected and what should be improved. Finally, Mr. Hoballah said that investment, legal framework, and co-operation at different levels were the main fields to be improved, and lessons from CAMP Malta would be very helpful. Concluding his speech, he raised hopes that they altogether would have very frank and constructive discussions for a result that should be their common interest in the field of ICAM. Mr. Hoballah's speech is given in Annex VI.

12. On behalf of METAP, and of his own, Mr. A. Alm, Senior Environmental Specialist of the World Bank, addressed the meeting. He stressed that environmental problems of coastal areas still existed, resulting in losses of natural resources and economic values of the Region. To that end, he pointed out to a need for a long-term sustainability of ICAM. Mr. Alm concluded that the workshop was a result of an effort to address those issues. Finally, he expressed his thanks for the excellent facilities Malta had provided.

Agenda item 3: Election of officers

13. The meeting elected the following officers:

Chairman:	Mr. L. Vella (Malta)
Vice-chairmen:	Mr. M. Bricelj (Slovenia) Mr. A. Abul-Azm (Egypt) Mr. G. Constantinides (Cyprus)
Rapportuer:	Mr. T. Gargouri (Tunisia)

14. Mr. Vella thanked the participants for his election as Chairman, and opened the first session of the meeting.

Agenda item 4: Adoption of the agenda and organisation of work

15. The meeting adopted the agenda contained in Annex II of this report.

16. The meeting noted that the rules of procedure contained in the document UNEP/IG.43/6, Annex XI, were applicable *mutatis mutandis* to its deliberations.

Agenda item 5: Introductory presentations

17. Mr. Trumbic gave an introductory speech on ICAM within the Mediterranean context. At the beginning of his presentation, he defined ICAM as a continuous, proactive and adaptive process requiring a multidisciplinary approach, problem solving, stakeholder participation, integration among sectors, institutions and administrative levels, as well as full understanding of interactions among coastal resources, their use, and impacts of the development on economy and the environment. He presented three stages of the ICAM process, i.e. initiation, planning and implementation. Mr. Trumbic, then, explained the definition of MAP CAMP as a joint practical implementation of the expertise of MAP components, as well as of the national and local capacities, integrating a number of important stakeholders. The programme is focused on coastal areas promoting the ICAM as a major tool that brings together a variety of activities towards achieving sustainable development of coastal areas. He stressed that its results and experiences should be replicated in other national and Mediterranean contexts. As to CAMP selection criteria, pointed out were project sustainability, representativeness, regional interest, political commitment, institutional capacity, "integrability" of results, and national and regional replicability. Bureaucratic inertia, opposition to changes from multiple private economic interests, lack of adequate political will, lack of financial resources, complexity of legislative issues, as well as lack of understanding between marine scientists and land-use planners were pointed out by Mr. Trumbic as barriers to effective implementation of ICAM. He mentioned some of the components that are important to effective ICAM implementation, such as: integration and co-ordination, linkages among sectors, long-term project sustainability, local community and stakeholders' participation, achieving consensus on coastal resources' use, and fitting the ICAM process to the institutional, organisational and social environments of the countries or regions involved. Mr. Trumbic concluded his presentation mentioning the objectives of the workshop, namely, the importance of exchange of experience, lessons learned, ingredients of success, improving the implementation of coastal projects, and laying foundations for the joint MAP/METAP planning of future actions.

18. Mr. Alm spoke about achieving sustainability in coastal zone management. He stressed that despite a wealth of information, a large number of pilot projects, and political statements of interest, there was a concern about the lack of sustainable actions. According to METAP, the cost of environmental degradation may reach up to about 6% of GDP, showing a serious economic loss for national economies. On the other hand, studies carried out by the EC show that the benefit/cost ratio of ICAM varies between 13.6 and 8.6. Despite that ICAM seems to be a high-yield investment where both the private and the public sector returns are high, ICAM projects in the Mediterranean region have so far been driven mainly by the availability of grant funding. He pointed out to a need to promote elements in future ICAM projects, which generate sustainable ICAM processes at national levels. Stakeholder participation and sustainable financing were mentioned as key issues that need to be addressed. According to Mr. Alm, broad stakeholder participation would increase knowledge, commitment and transparency, and promote collective accountability, development/implementation of innovative policies, and frameworks for co-operation. It should also build trust, identify who will/should be impacted, and, finally, provide incentives for support in cash and kind. Mr. Alm concluded that the development of national policies for ICAM (regulations, economic instruments, information) and development of sustainable finance mechanism to raise local funding, including public-private partnerships, were other components which should be pursued to achieve sustainability in the ICAM process.

Agenda item 6: Projects presentation

19. Mr. A. Abul-Azm from the Egyptian Environmental Affairs Agency (EEAA), presented experiences in the implementation of and lessons learned from CAMP "Fuka-Matrouh", Egypt. In the introduction to his presentation, he said that the project had started as a pilot study supported by UNEP-MAP in 1992, and had been completed in 1998. EEAA was the implementing agency and the project was made in collaboration with the University of Alexandria and various other university and governmental agencies and in close consultation with PAP/RAC. He mentioned the main objectives of the project, namely: to ensure sustainable development of the coastal area under consideration; to present a pilot case study to decision makers for ICAM and Strategic Environmental Assessment (SEA) for immediate implementation; and to build national capacity and present an example for similar areas, which could be developed in an analogous way. He, then, presented the main activities implemented and underlined the role of data collection and building of the Geographic Information Systems (GIS), which was used to identify and assess suitable land for various land uses under pre-set specific criteria. Coastal zonation was carried out to identify specific tourist activities, and Carrying Capacity Assessment (CCA) of zones selected from the set of suitable areas for tourism identified by land suitability analysis, was done. He said that the integrated coastal development plan was an important output, based on development of a number of specialised zones for tourism with specific recommended orientation. In conclusion, he said that the project has been very useful in drawing attention of officials and decision makers towards environmental problems of the region. A pre-ministerial decree has been issued to ban any construction on the north-western region until a complete integrated plan is approved by all concerned ministries. He mentioned a detailed project entitled "Economic and Social Planning for Spatial Development", which has been launched by the Ministry of Planning and supported by the United Nations Development Programme (UNDP) to identify and assess resources and provide well integrated development plans. The new project has used results of Fuka-Matrouh project as the starting pilot project and has adopted the same techniques to extend and develop further experience in integrated planning of coastal areas. The report on CAMP in Fuka-Matrouh is presented in Part II of this document.

20. The experiences in the implementation of CAMP "Albania" were presented by Ms. A. Bako from the Ministry of Environment of Albania. Ms. Bako pointed out that the CZM Plan for Durresi-Vlora region (the central coastal region) had been prepared within the framework of UNEP/MAP, while the CZM Plans for the North and South coastal regions had been elaborated with the assistance of METAP. Activities carried out in the period 1993-1996 were as follows: preparation of the coastal profile of the central coastal region (Durresi – Vlora); organisation of a Geographic Information System (GIS) and ICAM training course; preparation of a Water Resources Management Study for Erzeni and Ishmi rivers; conducting a Carrying Capacity Assessment for Tourist Activities in Lalzi Bay; preparation of an Environmental Impact Assessment Study for the Ksamili Peninsula Project; and preparation of a Training Programme on GIS. Ms. Bako presented the main achievements of the CAMP, such as: influence of the CAMP to the solution of priority environmental-development problems at the local level, improvement of institutional capacities of ICAM, application of tools and techniques of ICAM, formulation and implementation of relevant national policies and strategies, dissemination and exchange of experience at the regional and international level, and training and capacity

building of local and national experts. Mentioned were also actors involved and follow-up activities of the CAMP. She stressed that the project could have achieved more in terms of a better co-ordination of inputs between different administrative levels, more precise consideration of the CZM Plan objectives, better public involvement and public awareness, more efficient information system, better integration of population issues, urbanisation, land-use conflicts, and privatisation process into management policies. Also, she elaborated several strong points of the CAMP, which were the following: the consideration of the whole Albanian coastal area; promotion of co-operation; promotion of formulation of policies and strategies at the national level; training of experts; increasing awareness; strengthening of capacities at the national level; transferring international knowledge and experience; and promotion of the co-operation with international funding institutions. In conclusion, Ms. Bako proposed some recommendations for the future improvement of ICAM projects. The report on CAMP for Albania is given in Part II of this document.

21. CAMP "Sfax" was presented by Mr. T. Gargouri from the National Agency for the Protection of the Environment (ANPE) of Tunisia. The CAMP for the south coast of the town of Sfax was implemented in the period from 1994 to 1998, and it included the participation of all MAP RACs. Owing to this valuable initiative, ANPE was given a possibility to offer to the region a data base, as well as a series of multidisciplinary studies summarising the state of the coastal environment of Sfax, including a number of proposals for solving the identified and foreseen problems. This experience allowed the development of a new method of approaching the coastal zone problems, as well as the training of local managers and experts capable of recognising and understanding the management problems. Although the project exceeded the foreseen two-year period, and encountered some difficulties relevant to both the adjusting of methods proposed within the national context and their application, it represents a very good local and national experience considered as the first of that kind in Tunisia. Mr. Gargouri stressed that MAP and the Mediterranean countries should go further with this first experience, because the post-project period is a little bit ignored, and strong joint efforts should be made to make a better use of the results of these projects. The report on CAMP for Sfax is presented in Part II of this document.

Agenda item 7: Discussion on projects presentation

22. In the discussion that followed, a number of comments were made on the above presentations by the participants. Mr. Hoballah pointed out that drawing lessons from the already completed CAMPs was important for the on-going and new CAMPs, as well as for the MAP as a whole, because there are good inputs on how to improve ICAM projects. He stressed a need for a critical approach so that everybody could profit. The presented CAMPs, he said, were quite different in scope and could not be unified in approach. He pointed out to the case of Albania where major political and economic changes occurred in the meantime, so it is difficult to assess what was left after the CAMP. The question was raised of how to help the country to better deal with CZM, and to make it more efficient and useful. As for the CAMP Egypt, a question was raised of what was left there after CAMP had been completed, and how could we improve CZM in the country. A decision line between the central, regional and local governments was rather long, and, therefore, a question was put forward of achieving more sustainability from that point of view. Similarly, the CAMP in Tunisia faced the problems of communication between the central and regional authorities, and there was a need to put all partners together.

23. Mr. Th. Papayanis from the MedWet Initiative, stressed the importance of the two issues: the synergy and sustainability of projects, as well as the need for the exchange of common lessons from projects in the Region, such as CAMP and MedWetCoast ones. Mr. G. Constantinides from Cyprus pointed out that the economic analysis vis-à-vis environment in CAMP reports was not included but would be useful in order to find out if lack of finances and political support could be overcome by a better integration among sectors, science, institutions, etc. Mr. Vella stressed the need for the legal framework and a stronger political support for the projects as it is important for the follow-up of projects and CAMPs in preparation. Ms. M.-C. Tabar-Nouval from France mentioned that urban expansion, pressures on the coasts from urban development and tourism were growing very fast. But, she expressed the feeling that those issues were not well covered in CAMP projects. Therefore, she proposed to integrate the urban dimension in the analysis of sustainable development around the Mediterranean. Mr. M. Scoullos, MIO-ECSDE, said that political support in the projects presented was weak. According to him, CAMPs seem to be more of a training exercise than planning. A common approach in the Region is not possible and the need for indicators is stressed. Ms. S. Natèche from Algeria wondered what would the legal instruments for the follow-up of projects be to allow for the continuation of projects and experiences. She proposed to have an agreement at the governmental

level to secure follow-up activities and guarantee sustainability similar to the one for the implementation of CAMP, or in a form of act or law.

24. Mr. Gargouri underlined the benefits his country had gained from CAMP, pointing out that the Ministry was willing to re-launch the project. There were several follow-up activities in the country, and the Ministry was very satisfied with the project. Many recommendations of CAMP are being implemented and there are lots of pragmatic solutions. But, he said, there was also a lack of financial support, and maybe CAMP could help to obtain it. Finally, Mr. Abul-Azm said that in his opinion, implementation and enforcement of existing regulations was very important. He also said that CAMP was a very good training exercise especially for the regions away from the capital. Similar projects to CAMP were introduced to the Red Sea areas (Hurgada) where they used the experience of CAMP.

Agenda item 8: Projects presentation

25. After the lunch break, CAMP projects' presentations were continued. Experiences in CAMP "Syria" were presented by Mr. F. Asfour, who in the introduction explained that the project had included two phases: ICAM, which had been implemented in the period 1989-1990, and Coastal Resources Management Plan (CRMP), which had been implemented between 1991 and 1992. The project covered the Syrian coastal region, which is only 2% of the total area and 11% of the total population. He explained that the main objectives of ICAM were to indicate the conflicts and the type of pressures, to show the opportunities and constraints of development, and to suggest immediate and long-term measures. Whereas, the objectives of CRMP were to prepare an action plan for coastal zone resources management, training of experts, to recommend relevant legal instruments, to introduce and adopt the modern tools and techniques, and to propose land use for the coastal region. Besides ICAM and CRMP, the CAMP included the preparation of a number of programmes and studies relevant to the monitoring of marine environment, effects of climate changes, sea pollution from land-based sources, future planning for the coastal region, preparedness for and response to accidental marine pollution, protection of the ports of Banias and Tartous against oil pollution, and historical site protection. Mr. Asfour said that the main achievements of CAMP included the influence to the solution of priority environment-development problems, improvement of institutional capacities for ICAM, as well as training and capacity building. He mentioned also the lessons learned from CAMP, pointing out that: the integrated plan was just a tool which would help resolve the problems; a multi-technical teamwork should be created from all related sectors; the project showed the magnitude of the environmental problems; needs were identified for investments and procedures for problem solving; and the importance of precautionary measures was identified. In conclusion, he proposed the following recommendations for the improvement of coastal zone projects: to elaborate pre-investment studies for the most important cases in the coastal zone ("hot spots") as a follow-up; to evaluate the progress of coastal zone management; and to move towards strategic action plans for integrated environmental planning at regional level. The report on CAMP for the Syrian Coastal Region is given in Part II of this document.

26. The floor was then given to Mr. J. Margeta from Croatia, who presented the experiences in the implementation of CAMP "Kaštela Bay". He started his presentation with the description of the wider area of Kaštela Bay, including the basic description of the geographic, climatic, environmental and socio-economic conditions. He shortly described and gave a background information on the problem development with basic information on the level of environmental degradation. Among the major problems mentioned were an extremely degraded environment, highly polluted coastal sea, inadequate economic structure, inadequate urban infrastructure and numerous demographic and social problems. Together with CAMP, several other projects have been developed into a unique general project of "Management of Natural Resources of Kaštela Bay". Results of other projects associated with CAMP issues were presented, too. A result of the follow-up of the CAMP activities was "Integrated infrastructure project", which has been financed by the World Bank through METAP Project of Kaštela Bay. As the results of METAP project feasibility study, the sewerage system and water supply system have been developed, as a basis for the World Bank loan for the construction of these infrastructure. He underlined that the construction of infrastructure (started in 1999) was becoming one of concrete and very successful results of CAMP project. Characteristics of the infrastructure projects and associated environmental improvement have been presented, as well. Mr. Margeta concluded his presentation with suggestions for improvement of CAMP projects, such as: simultaneous introduction of the top-down and bottom-up planning procedures, improvement of scientific co-ordination, better selection of project topics, better integration of numerous CAMP activities as a unique project, creation of useable results, proposing the immediately implementable results of the project for

resolving local environmental problems. The report on the CAMP for the Bay of Kaštela is given in Part II of this document.

27. CAMP "Israel" was presented by Ms. V. Brachya from the Ministry of Environment of Israel. In the beginning, she introduced the CAMP area which covered the whole coastal strip of Israel, some 190 km in length. She mentioned that the CAMP had taken place during 1996 to 2000 and related to a number of issues relevant to the highly urbanised coastal area and the main economic focus of the country. Some issues were coast-specific and some of national concern in relation to policies for sustainable development. She said that various professional activities had involved local experts and many linked up with other activities within the country to create synergy and ensure continuation. CAMP provided a major input to policy changes on coastal zone management by the land-use planning authorities, particularly in relation to coastal erosion and coastal sand management. These were incorporated into statutory decision-making at the national level but did not sufficiently penetrate into the local level. Ms. Brachya stressed that efforts were still needed to bring local authorities to align their coastal activities with the principles of coastal zone management. A similar situation, she underlined, was found relating to the CAMP project concerning sustainable development, which involved local experts and has generated ongoing discussion at national policy level. Further work is now needed to integrate sustainable development concepts into the policies of local authorities. NGOs were active participants in all activities. Remote Sensing contributed an important technique to better data analysis but, she said, was not instrumental in changing policies. Economic analysis of coastal land values was insufficient to be useful and needs to be revisited. She mentioned the project on the marine pollution hotspot of Nahal Kishon, which was a relatively small part of CAMP, but has since been followed up significantly by pollution reduction activities and consensus building with some of the stakeholders. In conclusion, Ms. Brachya stated that the CAMP "Israel" was integrated with ongoing activities within the country and together with the involvement of local experts and NGOs, has continued to contribute to improving coastal management and activities towards sustainable development. The report on CAMP for Israel is given in Part II of this document.

28. Mr. H. Coccossis, Greece, presented experiences in the implementation of CAMP "The Island of Rhodes", pointing out that the CAMP was the first pilot application of Integrated Coastal Area Management (ICAM) intervention in the Mediterranean. The objectives of the CAMP were: to protect the coastal resources recommending appropriate management measures; to establish an integrated planning and resource management system on the island; and to offer solutions to urgent environment/development problems for immediate implementation. The entire programme, he stressed, had a positive impact on the organisation of the administrative bodies and technical services at all levels. In conclusion, Mr. Coccossis said that there were no direct follow-up activities, however, several actions had been taken on the basis of the same priorities defined in the CAMP project. The report on CAMP for the Island of Rhodes is given in Part II of this document.

29. Mr. E. Özhan from MEDCOAST, Turkey, presented the CAMP "The Bay of Izmir". He mentioned that in 1987, PAP had launched the programme of "Country Pilot Projects (CPPs)". The Izmir CPP was selected in the first (and the only) group of the projects together with three others, and was carried out between 1988-1989. The major emphasis was given to the pollution of the Izmir Bay throughout this phase. He mentioned that preparation of CAMP for the Bay of Izmir had been approved by the Sixth Ordinary Meeting of the Contracting Parties to the Barcelona Convention (Athens, October 1989). The Turkish Government and the Mediterranean Action Plan (MAP) signed the project agreement in June 1990. After a period of preparations, he said, CAMP "The Bay of Izmir" had been started in October 1991. The project was concluded by a presentation meeting held on September 29-30, 1993. In this phase of the project, the so-called "Integrated Management Study for the Area of Izmir" was completed. The work carried out throughout CAMP "The Bay of Izmir" was assessed. It was pointed out that in the review, special emphasis was given to the "influence of the CAMP to the solution of the priority environment-development problems at the local level", "improvement of institutional capacities of ICAM", "application of tools and techniques of ICAM", "training and capacity building of local and national experts", "co-operation, exchanging experience and offering results, methodologies and procedures to other regions at the international level", "the follow-up activities", and "the management of the CAMP". Finally, Mr. Özhan said that the weak and strong points of CAMP "The Bay of Izmir" had been discussed and various proposals outlined for the formulation, implementation and follow-up phases of the future CAMPs, in order to make these significant efforts more effective. In conclusion, he said that CAMP "The Bay of Izmir" was a significant project for Turkey, as it was the biggest effort of its type ever carried out. It contributed academically to the progress of environmental management

in general, and of integrated coastal management in particular, in Turkey. The report on the CAMP for the Bay of Izmir is given in Part II of this document.

30. The experiences in the implementation of CAMP "Malta" project, which is in its final stage of implementation, were presented by Ms. Ch. Tanti from the Environment Protection Department of Malta. Giving an overview of CAMP Malta, she pointed out that Malta had limited and fragile ecological resources and therefore could not allow room for error in the utilisation and management of the environment. The selected project location was the north-west area, and it was co-ordinated by the Environment Protection Department with the participation of other institutions. The Malta project has therefore brought together various other entities from the academic and professional fields who are working together on separate but inter-related activities. The five thematic activities of the Malta CAMP project were mentioned, namely: Sustainable Coastal Management; Marine Conservation Areas; Integrated Water Resource Management; Erosion/Desertification Control Management; and Study of Environmental Health Impacts on Tourism. Ms. Tanti underlined that data management, Systemic Sustainability Analysis and public participation were horizontal activities, which were indispensable as principal integrative elements in the project. Data management, she said, had provided inputs to all activities in an organised way, as well as assisted the national teams in data collection during the implementation of the five thematic activities. She concluded by pointing out to the participatory programme as an important aspect in this project since it brings the main stakeholders and the public in general to actively participate in the drawing up of recommendations, strategies and policies, which are based on the findings of the thematic activities. The report on CAMP Malta is given in Part II of this document.

Agenda item 9: Discussion on projects presentation

31. The above presentations were followed by a number of comments by the participants. Mr. Papayanis pointed out to the importance of introducing two aspects into CAMP projects, namely: biodiversity protection as an activity of CAMP, and the issue of measures undertaken to overcome/remedy the situation when problems appear, such as illegal building. Mr. P. Bougeant from the Conservatoire du littoral, France, stressed the fact that there were many projects in the region competing for similar financial sources. He suggested a better transparency of financial backers, so that international financing could be carried out more efficiently by local authorities. Also, according to Mr. Bougeant, a new legislation should be introduced and enforcement of existing laws be improved.

32. Mr. Hoballah answered to some questions raised by previous speakers. He agreed that the implementation of existing laws, which would be a very difficult task, would improve a lot the situation in coastal areas. In addition, after the implementation of existing legislation has improved, proposals for new acts could be made. He said that he was aware of the need for improved relations among donors, but countries should play a supportive role to MAP in order to achieve a better co-operation. There are good and less good examples of co-ordination among the different projects in the Region. A lesson from this experience could involve a more in-depth preliminary phase, which would be followed by a good CAMP project. This phase, he stressed, was lacked in the case of CAMP Albania, for example. Referring to CAMP Kastela Bay, he said that it was hard to say how much CAMP had contributed to that success story and what we could learn from it. Similar is with the CAMP Rhodes, a remote and isolated area, away from the central authorities where the CAMP was more thematic. He concluded by stating that a better preparation of CAMP project and a strong national and local commitment to the project would create more chances for a successful CAMP.

33. Mr. Trumbic complemented Mr. Hoballah saying that MAP and PAP were always looking for the improvement of CAMPs. He mentioned that a similar meeting had been conducted in Cairo, in 1998, where MAP/METAP assessment of ICAM projects had been discussed. He pointed out that the present meeting was not to evaluate but to chart the future path of CAMP. Implemented CAMPs, he stressed, had had different contexts and different expectations, and because of that it was difficult to assess them at an equal basis. But, he pointed out to the need to assure that coastal zone projects benefit the most from the resources utilised. In this respect, he concluded, a political and institutional support to projects should be secured.

Agenda item 10: Other experiences and future of ICAM projects

34. Mr. R. Kay, PAP consultant from Australia, gave a presentation on experiences in other regions and on the future of ICAM projects, focusing on the ability to learn lessons from international coastal planning

approaches by referring to coastal management and planning practice from around the world, with special emphasis on Australia. Key elements in the long-term's sustainability of coastal planning processes were examined, in particular focus was given to those attributes of coastal planning approaches that assist with their implementation including the role of coastal plan steering committees, values-based planning techniques and the use of microfinancing implementation measures. He compared integrated coastal planning with a journey and implementation activities with the destination. He argued that there was merit in assessing the success of coastal planning initiatives both by their implementation actions and the more intangible benefits gained during the planning journey. Experience from Australia, he underlined, and from elsewhere outside the Mediterranean region, shows that good planning is deeply embedded in administrative, political, social and cultural contexts. He concluded saying that participatory coastal planning processes are worthwhile and can reap substantial benefits to plan implementation and broader benefits including institutional and individual capacity building. The paper on Coastal Planning Experiences from Elsewhere is included in Part III of this document.

Agenda item 11: Keynote speeches

35. The second day of the workshop was organised into two sessions: keynote speeches and working groups. Three major themes were presented:

A. Improving the design of projects, planning and programming of interventions;
B. Increasing effectiveness of the coastal zone projects; and
C. Achieving sustainable results, stimulation of local societies and stakeholders to implement and support these in practice.

For each of the major themes, a keynote paper was prepared and discussed in more detail by working groups led by the keynote speakers.

36. The purpose of the keynote speeches was, among others, to provide guidance on how ICAM projects could be designed and implemented to achieve more sustainable interventions and improvement in coastal areas. Continuous improvements of local capacities in implementing projects in coastal areas are essential for the success of the projects. This is the reason why a particular importance of the keynote speeches was given to effectiveness of the implementation of the projects and their follow-up. Equally important is how to increase the political will and stakeholder active involvement or to proceed with the implementation and follow-up of projects. Financing mechanisms, more specifically stimulation of internal and external financing, as well as public-private partnership, were also included as a theme in the keynote speeches.

37. Mr. Coccossis spoke about ICAM interventions in the Region. At the beginning of his presentation, he pointed out that the multiple interests and conflicts, which are experienced in the Mediterranean coastal zones, require attention and the adoption of a pro-active stance in policy making. Overall, he stressed, there has been little evidence of major successes in follow-up of ICAM interventions in the Region. Most have been one-shot operations, heavily influenced by the existence of external (mostly international or supra-national) initiatives and funding. Several of the interventions adopt an innovative planning approach for a coastal area, reflecting a first attempt to introduce ICAM. The variety of responses and initiatives underlines the need to act for coastal areas, while in each attempt one can find elements of interest or innovations which can stimulate further thoughts about action. He, then, stressed that coastal issues and problems were complex and cross-cutting requiring the mobilisation of several key actors/stakeholders and the community at large, which are difficult tasks in a Mediterranean (pro-development, sectoral approach, and top-down characterised by high land values and full of intensive conflicts) context. He concluded that ICAM required long-term effort and commitment. Finally, the necessity was also mentioned to place a stronger emphasis from the very beginning (i.e. design of the intervention) on the mechanisms and tools to achieve implementation and follow-up. The keynote paper entitled "Integrated Coastal Area Management Projects: Beyond Interventions" is included in Part III of this document.

38. Mr. E. Koutrakis, PAP Consultant, spoke about improving the design of projects, planning and programming of interventions for Integrated Coastal Area Management (ICAM). After an introduction to the problems and conflicts in the coastal zones, the variability in coastal zone management approaches and the common drawbacks in CZM projects were described. The EU approach was presented, as well as the EU Demonstration Programme on Integrated Coastal Zone Management. Mr. Koutrakis mentioned the Strymonikos project (Greece) as one of the demonstration projects, which was used as a case study in order to show the cyclic process those projects were based on. The problems and actions of the project were

presented as a step-by-step process, whereas the ICAM project design explained the motivations for such initiatives and the stages that the project should include. According to Mr. Koutrakis, the first stage "Analysis of the existing situation – goal definition", should be considered as very important, as it would input into the formulation of goals and objectives leading to the definition of management strategies. The second stage "Delimitation of management zones", gave the possible ways of delimitation, whereas at the stage of "Strategy planning", setting priorities of action was of the greatest importance. At this stage, he said, the needs, feasibility, and potential benefits of ICAM are explored and the basic strategy is decided and articulated in an Action Plan that introduces principles and guidelines for management. The stages of "Implementation" and "Monitoring and evaluation" should also be taken into account in the project design. Mr. Koutrakis concluded his presentation pointing out to the key issues for successful ICAM projects, namely: building on existing experience and practice; understanding and applying the gradual ICAM process with flexibility; taking a joint action; having a good knowledge of the environmental, social, economic and administrative features of the area to be managed; ensuring a continuous monitoring of the area; supporting actions of environmental awareness, training, dissemination of information; promoting participation of the public and local authorities; co-ordination in the form of a legally instituted management body; and preparation and adoption of a national strategy for coastal zones on the basis of ICAM principles. The keynote paper entitled "Improving the design of projects, planning and programming of interventions for Integrated Coastal Zone Management" is included in Part III of this document.

39. Mr. B. Shipman, PAP Consultant, gave a presentation on increasing the effectiveness of Coastal Zone Management (CZM) projects. He pointed out that effective CZM was a continuous process involving the concerted actions of actors over an indefinite time period. CZM projects, therefore, have an inherent weakness – being constrained within defined and relatively short time periods. CZM projects, therefore, must seek a balance between the need to demonstrate practical, concrete results within the project period, and the creation of optimal conditions in which CZM as a process can continue into the future. Three key building blocks of the CZM process were discussed with recommendations on how projects can seek to recognise or optimise each: (i) the Governance environment: the securing of political will and building both legal and human capacity for CZM should be integral; (ii) information and knowledge: building a "smart coastal community" in which specialist scientific knowledge and local understanding can exist side by side, while information technologies for CZM should be designed to be "fit for purpose" and match the needs and capabilities of end users; and (iii) participation and partnerships: recognition and sensitivity to the cultural and social context of the individual CZM project are important. Mr. Shipman pointed out to the importance of early "wins" and demonstration projects in developing confidence and trust. According to him, achieving effectiveness – judged in terms of securing change in the long term – depends on engaging with the local circumstances of the coast concerned. In achieving this engagement, technical aspects of CZM become subservient to the understanding and use of social mechanisms. In this analysis, effectiveness is achieved through an issue-led, people-centred, locally specific approach. He concluded his presentation saying that CZM is placed firmly in the social and political arena, whether challenging the nature of decision making on the coast and the legal processes, or provoking debate on coastal issues, themes and futures. Ultimately, he said, participation enriched the CZM process – bringing to the discussion a wealth of local knowledge, ideas and unconventional means of problem solving. The keynote paper entitled "Increasing the Effectiveness of Coastal Zone Management (CZM) Projects: Optimal Conditions vs. Practical realities" is included in Part III of this document.

40. Mr. I. Tiainen, METAP Consultant, spoke about improving the sustainability of Integrated Coastal Area Management (ICAM) with particular stress on the role of participation. It was stressed that a participatory approach in the ICAM process was essential to achieve sustainability of the process and its results. The key issue of sustainability is a firm commitment and involvement of national and local authorities, political decision-makers, NGOs and general public. Key elements of participation strategy, methodologies and techniques in ICAM were described, and cases of ICAM where participation had had an important role, were analysed. Mr. Tiainen mentioned the experiences from the last three decades showing that the traditional top-down management is not suited to the complex problems encountered in coastal zones. He stressed that in order to promote the sustainable project implementation, participation should be a clear and open process, it should have sufficient representativeness and resources, it should utilise appropriate mechanisms and techniques and it should include learning components. According to Mr. Tiainen, it is evident that in the Mediterranean coastal areas circumstances vary so much that there can be no one specific way to develop a participation strategy. He concluded that detailed plans should be prepared on a case-by-case basis for specific regions.

41. The issue of sustainable financing within improving the sustainability of ICAM was introduced by Ms. M. Hiltunen, METAP Consultant. At the beginning of her presentation, she pointed out to financing as a key issue for the sustainability of coastal zone management. She mentioned different means of financing coastal zone management, including governmental financing, economic instruments, public-private partnerships, environmental funds, green businesses, and external funding sources. Governmental financing was characterised as an efficient way to finance coastal zone management especially when coastal zone assets, such as biodiversity, can be seen as a public good, offering utility to all taxpayers. A need was raised for a true financial commitment of the riparian governments in order to improve the sustainability of coastal management in the Mediterranean. Economic instruments provide sustainability and integrity to coastal protection policies because they introduce right price signals to different actors, minimise control costs, provide flexibility, and relieve budgetary pressures. The main Mediterranean environmental problems were mentioned from the point of view of utilising economic environmental policy instruments. Ms. Hiltunen stressed the importance of public-private partnerships as a means to involve private sector in financing investments in sectors like water and wastewater treatment, waste management and national park visitor services. In addition to investments, she said, public-private partnerships could provide technical and managerial expertise to public utilities, increase operating and investment efficiency and improve responsiveness to customer needs. Environmental funds are specialised funds and institutions established for collecting earmarked revenues and disbursing them for environmental and conservation purposes. Mentioned were also different fund types, which vary according to the source of financing and the fund purpose. Ms. Hiltunen stressed that green business promotion could be used to involve the private sector in financing sustainable development and, in addition, in providing employment and income for local communities. Finally, she presented various external funding sources, such as METAP, MAP and MEDA.

Agenda item 12: Working groups

42. The workshop participants were divided into three working groups led by the keynote speakers, who previously had presented their keynote papers. The working groups discussed in more detail three major themes elaborated in the relevant keynote papers:

A. Improving the design of projects, planning and programming of interventions,
B. Increasing effectiveness of the coastal zone projects, and
C. Achieving sustainable results, stimulation of local societies and stakeholders to implement and support these in practice.

Group A. discussed the issue of how ICAM projects could be designed and implemented to achieve more sustainable interventions and improvement in coastal areas. The importance of effectiveness of the implementation of the projects and their follow-up was the main concern of Group B., whereas Group C. concentrated on financing mechanisms with particular attention given to stimulation of internal and external financing, as well as public-private partnership.

Agenda item 13: Presentation of working groups' results

43. Mr. Koutrakis presented results of the working group A. Improving the design of projects, planning and programming of interventions. It was recommended that the following needs to be considered:

- Design projects as catalysts for a process of ICAM;
- Seek political support for project by using economic rationale, involving key actors, developing a vision, building on existing experience and policy framework;
- Implementation must be considered in the design process;
- Design the participation process, which would be locally accepted, help continuation, and focused on management;
- Analyse driving forces (i.e. needs of the community, culture of decision-makers and institutional framework);
- Document project risks, assumptions and dependencies;
- Tools should be employed to the extent that they assist the ICAM process and should be used cost effectively;
- Establish locally appropriate priorities between all elements of the coastal zone and ensure their integration (e.g. marine/terrestrial part, economic/physical features, etc.);

- Ensure ICAM process is continued after the completion of the project, through development of sustainable governance structure;
- Regular evaluation of the project should be included (i.e. peer review, external review and ongoing evaluation to assess changes in the project scope); and
- Develop Good Practice Compendium of ICAM interventions at the national, sub-regional and local level.

44. Mr. Trumbic presented results of the working group B. Increasing effectiveness of the coastal zone projects. The working group recommended as follows:

- Improve the legal framework. There is a need to convince major stakeholders of the usefulness of a protocol on ICAM in the Mediterranean. The scope of the protocol should be firstly defined and its benefits elaborated.
- Improve the visibility of projects. New projects as demonstration projects should be prepared in order to be replicated in other areas.
- Identify priority issues and guarantee synergies with other actors, projects, such as MAP/METAP.
- Shift the emphasis of the goals of projects to the post project phase (follow-up).
- Facilitate stakeholders' involvement and keep them allied to the project.
- Management of the project should be more left to local experts (for example, CAMPs in Lebanon, Algeria and Slovenia).
- Introduce indicators related to effectiveness for the project and post-project phases.
- Introduce interproject co-operation through twinning of projects, cross-border projects, thematic monitoring, regional co-operation.
- Increase network co-operation.
- Involvement of local authorities should be more effective.
- Capacity building should be in a form of pre-project activities.
- Improve training and exchange of experience (clearing house, web sites).
- Establish a network of practitioners in ICAM.

45. The results of the working group C. Achieving sustainable results, stimulation of local societies and stakeholders to implement and support these in practice, were presented to the participants by Mr. Tiainen. The working group concluded as follows:

- In achieving sustainable results from ICAM-pilot projects it is very important to include, already from the design phase, a number of elements, such as participation of stakeholders. Potential groups should be: (a) interested and active in collaboration – emphasis on co-operation; (b) passive, but potentially important – emphasis on awareness building on environmental issues; and (c) potential opponents – emphasis on awareness building on potential benefits.
- In order to mobilise real participation, a participation strategy is needed at the beginning of a project. It should include: identification of all potential stakeholders; identification of specific needs of each stakeholder; efforts to encourage and increase capability for active participation; awareness building, training, participation technique, etc.; and timely access to information. Active participation would increase trust, project ownership, collective accountability, transparency and support to the project.
- Capacity building concerning methods and mechanisms for existing planning authorities at both national and local levels to support the implementation of ICAM process.
- Governmental co-financing improves sustainability of projects and should therefore be encouraged in future ICAM projects.
- Economic instruments should be introduced step-by-step, taking into account social and economic conditions to constitute incentives for improved environmental management and to provide funds to ICAM process.
- The removal of destructive incentives (especially in agriculture, fisheries and tourism) would generate significant environmental benefits in the coastal zone.
- Public-private partnerships could be introduced under well-established, controlled and transparent procedures in order to complement limited public financing.
- Microfinancing can be a cost-effective way to involve and commit local communities in coastal zone management.

Agenda item 14: Discussion on presentation of working groups' results

46. Presentation of working groups' results was followed by many comments by the participants. Mr. Papayanis pointed out that completed, on-going and future CAMP projects should benefit as much as possible from each other, and PAP/RAC should play a co-ordinating role in order to pass over the experiences and lessons learned.

47. Mr. Hoballah focused on certain issues, such as the definition of a case-by-case principle and the role of local authorities, pointing out that the possible way to do this is by making an overall assessment of the involvement of local authorities in local development process. This could show the extent to which local authorities can adopt decisions and implement them. Together with other actors, an in-depth study could be prepared on this issue. What is missing, according to his opinion, is a set of indicators that should be employed from the beginning to the end of the project. They should be selected and structured for different phases of the project.

48. Mr. Alm stressed the importance of co-financing from the governments which shows a political will and commitment to the project. There is a question whether to start and continue financing of the project, if there is no local money involved. Mr. Constantinides mentioned the cost-benefit and economic analysis in CAMP. He also pointed out to "integration" as the key to success in CAMP initiatives. He stressed that a major priority underlying all CAMP projects was to promote initiatives that demonstrate how to incorporate environmental objectives across the whole spectrum of national policies and local practices. The paper on the economic dimension in CAMP, prepared by Mr. Constantinides, is attached as Annex VII to this report. Ms. Brachya found it of a great importance the ICAM at the local authorities urban level, which, as she stated, was not given enough priority when dealing with local management of coastal areas. Mr. Trumbic pointed out to a lot of initiatives concerned with protection, conservation or marine pollution in the region. But, the question is, he said, how to deal with ICAM in urban areas, if they are taken out of the ICAM context. According to him, the feasibility of MAP-PAP activities could be improved if this topic is included in ICAM activities. Mr. E. Pranzini from Italy was of the opinion that ICAM should have a clear connection to spatial planning, otherwise it could conflict with landscape management. Mr. Scoullos found the working groups' results quite similar, but also pointed out that there were differences in their focus, some are concerned with CAMP projects, the others are more general. Therefore, he suggested clarifications when finalising recommendations.

49. Mr. Trumbic made some clarifications about the scope of recommendations, saying they should go beyond CAMP and be useful for ICAM projects and programmes in general. Only when there is a specific recommendation, he stressed, there could be a reference to CAMP. According to Mr. M. Bricelj from Slovenia, a need for ICAM is clear and more should be done within the existing legal framework to implement it in practice. He concluded that ICAM was a tool for a more comprehensive approach and this should be stated clearly in the report. Ms. Hiltunen was of the opinion that there exist many tools and techniques and they should be used when dealing with ICAM implementation, such as the EU comprehensive package. Mr. Y. Henocque from IFREMER, was not in favour of using only EU techniques, stressing that the other ones, adopted and developed in other regions, should be employed, too.

50. Mr. Hoballah said that, in order to show country's commitment, financial contribution to projects should not be taken as a conditionality, but other ways should be found to secure commitment. He proposed seven key issues on which we should insist when developing future ICAM projects. These are as follows:

- local governance: importance of the role of local authorities in the management of projects (during and after the project);
- participatory approach: from the beginning to the end in order to secure sustainability;
- monitoring and evaluation indicators;
- relation between the national and regional level: what exists and is there a gap?
- insisting on better synergies between ICAM projects at national and regional levels, other partners, actors, organisations;
- commitment: how could we assess commitment?
- public-private partnership: how to achieve it?

Agenda item 15: Presentation of on-going projects

51. Recently, CAMPs in Lebanon and Algeria have started, while the new project in Slovenia was initiated. The on-going CAMPs for Lebanon and Algeria, and the initiated project in Slovenia were presented, including proposals for some concrete steps to improve them.

52. Mr. M. Prem, Deputy Director of PAP/RAC, presented the CAMP "Lebanon". He gave an overview of CAMP Lebanon, from a decision to start the preparation of CAMP to present-day activities, as well as the territorial scope of the CAMP. The criteria for the selection of the municipalities included in CAMP (Damour, Sarafand and Naquora) were described and the co-ordination structure presented. Followed by the general objectives of CAMP, specific objectives were presented through the elaboration of eight individual activities, which are as follows: project co-ordination and integration at the project level; ICAM; data and information management; urban management and sustainable development; marine conservation areas; tourism and sustainable development; participatory programme; integrated water resource management; and Systemic Sustainability Analysis (SSA). Mr. Prem mentioned that major constraints at project launching had been of administrative nature within the Ministry of Environment in Lebanon, delaying the start of activities and inception workshop. In conclusion, expected constraints during the implementation phase were elaborated, including untimely allocation of funds (MoE contribution), rules and regulations concerning the bidding process for contracts exceeding USD 2,000 which leads to delays, involvement of several public institutions with different responsibilities, institutional overlap, development priorities of the three municipalities with regard to infrastructure, and lack of interest for some activities.

53. Ms. Natèche presented the on-going CAMP "Algeria", which was launched following the signature in October 2001 of an agreement between the Government of Algeria and UNEP. She introduced the CAMP area covering a longitudinal coastal area of 115 km, including the area between the Bay of Chenoua, in the west and the Bay of Zemmouri, in the east. She said that the total surface area of the CAMP is 5,271.73 km^2 of which 447,173 ha are land and 80,000 ha marine resources. The total population number is 4,267,727 inhabitants half of them living in the "wilaya" of Algiers. Ms. Natèche mentioned the main environmental problems in the area, including urban, industrial and agricultural pollution, coastal erosion (caused by intensive urbanisation and important marine activity) degradation of natural and cultural sites, and problems related to water resources management. After having presented the study area, Ms. Natèche stated the immediate and long-term objectives of the CAMP, as well as the thematic activities: urbanisation control and land-use control; combating land pollution caused by liquid and solid wastes; integrated management of water resources; protection of natural and cultural sensitive sites; and integrated management of coastal areas. These thematic activities, she said, supported by the so called transversal activities (such as, the Geographic Information System – GIS, Systemic Sustainability Analysis – SSA, training and participation, strategy of financing), should lead to a prospective and sustainability strategy, a strategy of concrete actions, and a financing and investments portfolio necessary for carrying out interventions in a short, medium and long term. In conclusion, Ms. Natèche mentioned actions realised to date, as well as those to be undertaken immediately within the CAMP "Algeria".

54. Mr. S. Mezek, PAP Consultant, presented the CAMP "Slovenia". At the beginning of his presentation, he mentioned that the decision to carry out a CAMP project for Slovenia had been approved by the Contracting Parties to the Barcelona Convention, at their Extraordinary Meeting (Montpellier, July 1-4, 1996). He informed the participants that the feasibility study, which is being prepared, would identify the socio-economic and environmental contexts, define the area and possible activities of the local and national interest and assess the pre-conditions for a long-term sustainability of the process, triggered by the CAMP project. Regarding the CAMP area definition, three options were mentioned: the area of 3 coastal municipalities, the area of Coast-Karst statistical region (7 municipalities) and the area of statistical region enlarged by the municipality of Ilirska Bistrica. The statistical region has approx. 100,000 inhabitants, 80,000 on the coast (population density is approx. 200 inhabitants/km^2) and only 35 inhabitants/km^2 in the Karst. Mr. Mezek described the area as economically successful, occupying the second place in Slovenia according to GDP/inhabitant, seventy percent of gross value added is produced by service activities (trade, transport – the Port of Koper, tourism), and 30% by industry, building industry and agriculture (only 4%). He pointed out to the relatively high unemployment rate of 10%. He mentioned the most relevant environmental problems in the area, which are related to incomplete infrastructure of waste water drainage and treatment, solid waste management, management of protected areas at the local level, drinking water resource management (protection of the main source of drinking water, decision on future drinking water source and construction of infrastructure), land-use planning and development control, marine transport and pollution of

coastal waters, lack of appropriate data bases and information system. It was also mentioned that the representatives of the Ministry of the Environment and Spatial Planning expressed special interest to focus the CAMP Slovenia in the field of integrated river basin management in line with the EU Water Framework Directive and spatial planning at the regional level. Continuing his presentation, Mr. Mezek stressed that the Regional Development Agency for South Primorska could act as the local management unit of the CAMP project. The agency covers eight municipalities, three of them at the coast, the others from Karst and Brkini. The area of these municipalities corresponds to the Adriatic river basin in Slovenia thus giving an ideal organisational framework also for the integrated coastal area and river basin management. The organisational structure of the agency assures a broad partnership and involvement of all major stakeholders in the area: the programme board (nearly 50 members), consisting of the mayors of all municipalities, representatives of ministries, economic actors, trade unions and NGOs, and thus representing the regional development platform. In conclusion, he said that by appointing the Regional Development Agency for the local management unit of the Slovenia CAMP project, a very important goal – the long-term sustainability of the project – could be reached.

55. Mr. Alm gave a brief overview of the new initiative of METAP in ICZM. METAP is a partnership between the World Bank, the European Commission, the European Investment Bank, the United Nations Development Programme, the Governments of Switzerland and Finland, and 15 countries in the Mediterranean region. Based on a strategic document entitled "Integrated Coastal Zone Management in the Mediterranean – From Concept to Implementation: Towards a Strategy for Capacity Building in METAP Countries" approved by a regional meeting attended by 14 METAP countries held in Tunisia, on November 9-10, 2001, five Technical Assistance Projects were developed on:

- Enhancing the quality and effectiveness of countries' environmental and social assessment in ICZM;
- Providing the necessary tools and methodologies for developing a common policy framework;
- Strengthening the legal framework for the effective implementation of ICZM;
- Strengthening the capacity for the development of economic instruments and financial mechanisms to be applied in ICZM; and
- Developing pre-feasibility studies and investment proposals for the protection and rehabilitation of valuable coastal areas.

Mr. Alm concluded that METAP was in the process of developing these packages and identifying suitable implementation mechanisms, one of which would be a joint MAP/METAP project proposal.

Agenda item 16: Recommendations

56. The draft recommendations were presented and the participants were invited to make comments and suggestions on respective recommendation. Once a consensus was reached on the draft text, the participants adopted the recommendations that are attached as Annex IV.

Agenda item 17: Closure of the workshop

57. Mr. Trumbic thanked all the participants for their successful work. He, then, said that the workshop was a step further in the improvement of ICAM projects pointing out that the results of the workshop would help a lot since it was learned a lot. He thanked the Maltese organisers for a perfect organisation and hospitality, in particular Mr. Vella and Ms. Tanti. He also thanked interpreters for their excellent work.

58. Mr. Alm stressed that the workshop was a very good opportunity to strengthen co-operation between METAP and MAP, and stated that the meeting provided good inputs and guidance for the future work. He also thanked the Maltese organisers and the participants.

59. Mr. Vella thanked METAP and MAP-PAP representatives, pointing out that they were pleased to have the workshop in Malta. He also thanked his colleagues, interpreters, and the staff of the hotel.

60. The workshop was closed on January 19, 2002 at 13:00 hours.

Annex I
List of participants
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Annex II
Agenda

Thursday, January 17

10:00 – 10:30	Registration of participants.
10:30 – 11:00	Opening of the workshop. Welcome addresses. Election of officers. Adoption of the agenda.
11:15 – 11:35	Introductory presentations: ICAM: The Mediterranean context.
11:35 – 11:55	How to achieve sustainability in ICAM.
	Projects presentation:
11:55 – 12:10	CAMP “Fuka-Matrouh”.
12:10 – 12:25	CAMP “Albania”.
12:25 – 12:40	CAMP “Sfax”.
12:40 – 13:15	Discussion.
	Projects presentation (cont.):
14:45 – 15:00	CAMP “Syria”.
15:00 – 15:15	CAMP “Kastela Bay”.
15:15 – 15:30	CAMP “Israel”.
15:30 – 15:45	CAMP “Rhodes”.
	Projects presentation (cont.):
16:00 – 16:15	CAMP “Izmir”.
16:15 – 16:30	CAMP “Malta”.
16:30 – 17:30	Discussion.
17:30 – 18:00	Other experiences and future of ICAM projects.

Friday, January 18

	Keynote speeches:
09:00 – 09:20	Beyond interventions.
09:20 – 09:40	Improving the design of projects.
09:40 – 10:00	Increasing effectiveness.
10:00 – 10:20	Achieving sustainable results.
	Working groups (rapporteurs):
10:45 – 13:00	A. Improving the design of projects. B. Increasing effectiveness. C. Achieving sustainable results.
14:30 – 16:15	Working groups.
16:45 – 17:30	Presentation of working groups’ results (rapporteurs).
17:30 – 18:30	Discussion.

Saturday, January 19

	Presentation of on-going projects:
09:00 – 09:15	CAMP “Lebanon”.
09:15 – 09:30	CAMP “Algeria”.
09:30 – 09:45	CAMP “Slovenia”.
09:45 – 10:00	ICAM in the Mediterranean: From concept to implementation – Towards a strategy for capacity building in METAP countries.
10:30 – 13:00	Recommendations. Discussion. Adoption of recommendations.
13:00	Closure of the workshop.

Annex III
List of documents
Liste des documents

1. CAMP Reports (A. Bako; J. Margeta; M. El-Raey; H. Coccossis, A. Collovini and A. Mexa; Sh. Gabbay and V. Brachya; T. Gargouri; E. Özhan)
2. Experiences from CAMP Malta (Ch. Tanti)
3. CAMP Syria (F. Asfour)
4. Coastal Planning Experiences from Elsewhere (R. Kay)
5. Coastal Area Management Projects: Beyond Interventions (H. Coccossis)
6. Improving the Design of Projects, Planning and Programming of Interventions for Integrated Coastal Zone Management (E. Koutrakis)
7. Increasing the Effectiveness of Coastal Zone Management (CZM) Projects: Optimal conditions vs. Practical realities (B. Shipman)
8. Role of participation – Draft for discussion (I. Tiainen)
9. Sustainable financing – Draft for discussion (M. Hiltunen)
10. Integrated Coastal Zone Management in the Mediterranean: From concept to implementation – Towards a Strategy for Capacity Building in METAP Countries (A. Alm)

Annex IV
Recommendations for the improvement of implementation of coastal area management programmes

Introduction

Intensified development activities in the region's coastal areas are causing serious environmental degradation and have a strong impact on national economies. Integrated Coastal Area Management (ICAM) is an important tool in reducing coastal environmental damage and contributing to national sustainable economic growth. In the future, Governments in the Region need to increase their efforts in ICAM, which will require increased capacity building, improved inter-agency co-ordination, development of national ICAM policies, increased support from stakeholders and decision makers and securing sustainable financing.

MAP CAMP projects, METAP activities, as well as other regional ICAM initiatives have significantly contributed to the increase of the awareness and knowledge of coastal management as a tool for achieving sustainable development at the national and local level in the Mediterranean region. However, the UNEP/MAP/PAP White Paper on Coastal Zone Management in the Mediterranean and the METAP document "Integrated Coastal Zone Management in the Mediterranean – From Concept to Implementation: Towards a Strategy for Capacity Building in METAP Countries" identify a number of key issues which need to be addressed.

ICAM is a continuous, adaptive and long-term process. The process of ICAM is greatly enhanced by undertaking short-term ICAM projects, but these projects should act mainly as catalysts to stimulate the long-term process of regional and national ICAM. The Workshop recognised that the outputs of ICAM initiatives in the Region must include activities towards a sustainable ICAM process including policy development, adequate budget allocations, institutional empowerment, special area management, establishment of co-ordinating mechanisms and partnerships, the investment in infrastructure, protection and restoration, and awareness raising and capacity building.

Following the presentation of ICAM experiences in the Region and the discussion on key issues in three working groups (i.e. Project Design; Effectiveness; and Implementation), the Workshop made the following recommendations that would contribute to the long-term sustainability of ICAM in the Region. The recommendations are addressed to regional, national and local decision makers, general public, concerned non-governmental organisations, international institutions and organisations, and coastal area management experts and specialists working in the field.

Recommendations

Governance

1. The efforts towards reaching a consensus on a regional ICAM legal framework should be continued. The next step in this endeavour should be the preparation of a discussion paper on options and potential benefits of a regional charter or protocol.
2. The firm commitment of national authorities is decisive in ensuring the success of ICAM. The existence or establishment of appropriate mechanisms involving all relevant administrative bodies is a prerequisite for the initiation, design, development and effective implementation of ICAM.
3. National ICAM co-ordination mechanisms should be established, promoting in particular the private sector and civil society involvement.
4. The participation of local authorities in ICAM should be encouraged. The appointment of local committees, co-ordinators and local experts are crucial to ensure local support and commitment of resources to the coastal projects.

Participatory Approach

5. Stakeholder participation should be developed as a measurable objective in all projects and participation strategies elaborated.
6. Stakeholders should participate in all project phases in order to build support for the project, assist in its development and improve implementation of project results.

Monitoring and Evaluation Indicators

7. Indicators, monitoring and external review systems (whenever possible) should be developed as part of project agreements to assess the effective realisation of ICAM project in all its phases (pre, during and post project phase).
8. Project agreements should contain an analysis of risks, assumptions and critical external factors in order to increase flexibility and accountability of project implementation. Logical Framework Analysis should become a standard element of projects' agreements.

Synergy and Co-operation

9. Priority ICAM issues should be identified to create regional and sub-regional focus and enable synergy among initiatives to achieve efficient use of international and national resources. PAP/RAC should be asked to play a catalytic role in this endeavour.
10. International donors, such as MAP and METAP, should be encouraged to build partnership and undertake joint activities, taking into consideration the recommendations from this meeting.

Co-financing and Financing

11. Co-financing of projects from host Governments and local sources should be encouraged as a clear statement of national and local commitment.
12. Co-financing of projects is encouraged to support and complement international and national fund raising.

Public, Private and NGO Partnerships

13. Public-private-NGO partnerships and market creation could be introduced under well-established and transparent procedures in order to complement limited public financing.
14. The cost-effectiveness of microfinancing to involve and commit local communities in implementation should be investigated.

Knowledge and Information Sharing

15. Regional and sub-regional knowledge and experience should be shared through increased exchange of information on good practices of ICAM interventions at the national and local level, inter-project communication, thematic monitoring, increase in network co-operation including an internet site, and periodic regional review meetings.
16. Existing regional networks should be enhanced and a new regional network of coastal management practitioners should be established.
17. Enhance co-operation on ICAM between MAP/PAP and other Regional Seas programmes.

Programme and Project Design

18. Projects should identify key issues, establish priorities and determine relevant implementation tools. This should be determined in a participatory process.
19. The economic measurement of ICAM benefits should be quantified as far as possible. The use of economic methods, including cost-benefit analysis, should be encouraged in project and programme design.
20. Misuse of economic incentives (especially in agriculture, water sector, fisheries and tourism) should be identified and challenged.
21. Thematic projects should be developed on key regional issues to generate exchange of experience among regional programmes and projects.

Annex V
Speech by the Minister for the Environment

H.E. Dr. Francis Zammit Dimech

Ladies and Gentlemen,

It is with great pleasure that I welcome you to Malta. For me it is also another opportunity for renewed pleasures in meeting so many friends I came to know during my recently concluded presidency of the Bureau of MAP.

It is my sincere hope that in our small island you will have fruitful discussions on the subject matter regarding which you have been convened by PAP/RAC and METAP, namely to try to improve the implementation of CAMP programmes which have now become so important to us.

I must recollect the year 1987, when a new concept inspired the philosophy of Mediterranean co-operation through which special emphasis started to be placed on integrated coastal planning and management. MAP focused on concrete actions called "Coastal Area Management Programmes" (CAMPs).

CAMPs was the title given by the Contracting Parties to its Coastal Zone Pilot Projects, through which selected coastal areas were to be tackled with regard to environment and development. It is through CAMPs that the generic principles of the Convention became more area specific.

It is heartening today to look back at these years and to note the progress, which has been achieved by the Contracting Parties in integrated management of coastal areas, and the resulting enhanced protection which has been given to those areas which have undergone CAMP. It is also to the great credit of PAP/RAC that this tangible improvement intended by the Contracting Parties has been achieved in the many countries, which have participated in a CAMP. It is also evident that the Contracting Parties have been very receptive and appreciative of CAMPs since they have over time proved their value. To date, 11 CAMP projects have been completed, the CAMP Malta is in progress and another three are starting or will start shortly.

Each successive CAMP has in general been an improvement on the preceding one. Such improvement should be maintained. Periodic re-examination of the modalities of the management and implementation of CAMPs should become formalised so that any required updates can be made, to the benefit of subsequent project.

In this respect, I note that the present workshop has as its main task such an examination of the previous CAMPs. Participants and consultants who worked in previous and current CAMPs have been invited to Malta to recount their experiences to delegates from all countries. This sharing of experiences should form the basis for proposals for the future improvements of CAMPs, and of the implementation of the recommendations and outputs resulting from CAMPs.

The CAMP for Malta started just after the 11th Contracting Parties meeting, which was held in Malta, in 1999. After these two years, CAMP Malta is now in the last phases of its conclusion. All the team leaders and the participants are concluding their work, which will eventually lead to the preparation of a final integrated coastal area management plan. It is nonetheless useful and worthwhile to make some assessment of the effect, which CAMP has had in Malta.

CAMP Malta has already proven to have been quite ground breaking. Although CAMP Malta took a long time to elaborate, however, this long gestation period during which the agencies discussed it in detail, has resulted in a deep and lasting commitment to the project and to its ideals. I am informed that all the participants have put in an extraordinary effort, spending long hours collecting and analysing and discussing data.

The participants, many on behalf of their agencies, others in their personal capacity, have also had considerable interaction with stakeholders, ranging from Local Council representatives, divers, farmers, hotel operators to medical practitioners. This has improved relations between regulators and stakeholders, and increased the credibility of the public participatory process, which in Malta is now an established method of conducting government business.

Such public involvement also serves to strengthen environmental protection since the public can better appreciate the reasons behind any measures adopted by Government and thus willingly co-operate with Government.

The CAMP has also helped the participating agencies to work closely and fruitfully together on a project in which they had a common interest. CAMP has brought closer together the departments of Agriculture and Health, the Water Services Corporation, the Tourism Authority, the Ministry for Economic Services, the University, NGOs and many others. They all strove to a common aim concerning the Integrated Management of the Northwest part of Malta. This hitherto non-existent, or weakly existing spirit of collaboration amongst many entities will be very useful for future collaboration. I am certain that many of you here have experienced this renewed collaboration to resolve environmental problems. In Malta, this collaborative spirit has certainly come at a most appropriate time when the Government will be entrusting the regulatory functions existing in the environmental field to a new body created by merging the Environment Protection Department and the Planning Authority.

I must also make reference to some of individual activities, which have formed part of CAMP Malta.

One of the most useful activities has been the Systemic Sustainability Analyses activity. In this part of the project, which was introduced for the first time here in Malta, many officials have been guided through the process of preparing a set of sustainability indicators for the Northwest of Malta. Through this process, they have also received a deep understanding of the concepts of sustainable development, which will be extremely valuable within the context of the National Commission on Sustainable Development. This Commission will be set later this year by virtue of the new Environment Protection Act enacted last September.

Another activity, which has caught my attention, was the work carried out in connection with sustainable coastal management, which, together with the other activities has already provided considerable input into the revision process of the Structure Plan for Malta.

The Marine Conservation activity is also noteworthy because through this work we are now very close to have our first marine conservation area. It is also with satisfaction that I note that through the efforts of the RAC/SPA, on the basis of the work carried out in CAMP, funding through the Short and Medium Term Priority Environmental Action Programme (SMAP) has been secured to implement such a Marine Conservation management plan.

The CAMP has also generally created a wider appreciation of coastal zone management techniques, which we hope to put into practice shortly.

I have no doubt that during the course of this workshop we will be hearing many more of the successes of CAMPs in your countries. No doubt there will be some aspects, which will need to be improved or which need to be implemented in a different manner.

It is through such frank and honest discussion, between all of us, and together with the renowned consultants, who have been brought here by PAP and MAP, that our desire for improved CAMPs will materialise. I also hope that you will come up with better prospects for implementing follow-up actions deriving from CAMPs.

I wish you fruitful discussions and a pleasant stay in Malta.

Annex VI
Speech by the MAP Deputy Co-ordinator

Mr. Arab Hoballah

Your Excellency,

Dear Colleagues,

Ladies and Gentlemen,

On behalf of UNEP and MAP, I would like to thank you for hosting this important meeting (and the two others in the next few days) and for your hospitality. I would also like to use this opportunity to thank you for the positive assessment you have just made on the implementation of and expected impacts from CAMP Malta.

In the past and the present, as well as in the future, the social, cultural and economic history of the Mediterranean has always been and will be greatly influenced by the development and the management of its coastal regions.

If the Mediterranean Action Plan has been first launched to deal with the marine pollution, the focus was quickly re-oriented towards the coastal regions, because of the increasing pressure of human activities on rather narrow areas, their fragile ecosystems and fragile resources.

Consequently, and thanks to the activities and findings of mainly two MAP centres in this context, PAP/RAC and BP/RAC, Coastal Zone Management became an increasing concern for MAP, the Parties and their Partners.

Since 1989, an integrated approach to Coastal Zone Management was launched by PAP through a series of CAMPs, in co-operation with almost all other MAP components. Throughout the preparations for the Agenda MED 21, the MAP Phase II and the revised Barcelona Convention, the extreme importance of the Mediterranean Coastal Regions and their efficient management in conformity with the Sustainable Development concept, process and principles was re-confirmed and put higher in the agenda.

The Mediterranean Commission on Sustainable Development has even put the CZM issue on the top of its priority list, and the first set of recommendations proposed by the MCSD and approved by the Contracting Parties concerned the Sustainable Management of Coastal Regions.

Recently, the evaluation of PAP/RAC and of BP/RAC have concluded that their activities should be re-organised and improved in order to respond more efficiently to the sustainable management of the Coastal Regions.

Meanwhile, the CAMPs programme has extended, covering, with past, present and planned CAMPs, almost all Mediterranean countries, except 4 north-western ones. The CAMP methodology, from inception to finalisation has also evolved, in principle towards more efficiency; co-operation with other concerned partners in the Region, such as METAP, has been strengthened.

Considering MAP's specific structure, with the active involvement of the Parties and the various RACs, the CAMP methodology is also specific as various RACs are involved, each one of them with various national and international experts, throughout an inter-active exercise that takes 2 to 3 years in general; it is an obvious learning process, for the national as well as for MAP experts, aiming first at capacity building in the efficient management of the Coastal Regions.

Tools, methodologies and guidelines do exist, would they be Mediterranean as the ones prepared by PAP, or by others from around the world; many local, national, regional and international actors are dealing with CZM in the Mediterranean; and if right contacts and actions are engaged, then funds could be found.

But, we all feel or consider that we are still far from an efficient management; a lot was done, good things were achieved but a lot remained to be done towards sustainability. Therefore, in a critical but constructive manner, we and each one of us should identify where we, you and us, have been short, what have we missed or neglected, and what could we reasonably do to improve things?

Bringing together experts from various horizons and experts from countries with CAMPs at different stages of implementation is an excellent opportunity for such an exercise.

Should we devote more attention to institutional building issues in order to secure sustainability of the CZM? Could we do it, and how? And what about pre-investment?

Would regional and national appropriate legal frameworks be helpful and necessary to ensure solid background for Sustainable Integration of Coastal Zone?

How should the various Partners and Actors at regional and at national/local levels co-operate?

Your respective experiences in CZM and the specific context of each country and coastal region would be determinant in answering jointly and adequately these questions. Lessons from CAMP Malta will certainly be very helpful.

Therefore, and finally, I do hope that we will have altogether very frank and constructive discussions for a result that should be for our common interest in the field of CZM.

Thank you for your attention.

Annex VII
The Economic Dimension in CAMP

Glafkos Constantinides
Environmental and Planning Consultant

In CAMP initiatives INTEGRATION is the key to success. Integration means much more than a comprehensive approach to the assessment of resources, activities, pressures and impacts affecting the coastal environment; it involves establishment of capacities for integrating **policy responses** to coastal pressures within the various levels of the decision-making process. A major priority underlying all CAMP projects is to promote initiatives that demonstrate how to incorporate environmental objectives across the whole spectrum of national policies and local practices.

However, success is often constrained by two critical factors:

- Scarcity of budgetary financial resources for policy reviews, capacity building and follow-up investment expenditure relative to other pressing priorities.
- Insufficient political / public support for coastal management policies and measures, particularly those which are perceived to restrain or compromise national or local economic development.

Both these factors concern the degree to which CAMP projects incorporate tools of economic analysis in the formulation and implementation of coastal zone strategies. Insufficient use of economic analysis in coastal zone strategies often leads to an exaggeration of the financial and political costs of compliance with sustainable development guidelines and an under-estimation of the benefits from compliance, which contribute to the constraints described above.

There are several tools designed to support the application of economic analysis in coastal zone strategies, notably **Environmental Resource Valuation** and **Cost/Benefit Analysis**. Recent CAMP initiatives have used some of these tools to a variable extent. The question is: have they been applied to the extent of influencing strategy development and implementation priorities? Have their conclusions made the expected contribution to the incorporation of environmental objectives in national economic and social policies? Two important objectives are associated with use of the above economic tools:

- To bring within focus the economic costs of environmental impacts helping to justify in political and economic terms proposed actions and protection measures. While the prevention or mitigation of environmental impacts is a shared concern by all stakeholders, the estimation of the economic cost of inaction provides useful socio-economic information on the impacts of environmental degradation that attracts the attention and interest of decision-makers and the wider public.
- To create a context for the estimation of the economic value of the benefits of proposed management policies and measures, helping to justify resource mobilisation and increased investment expenditure in coastal management to achieve these benefits.

What is Economic Analysis About?

There is a common misconception that equates economics with finance. We need to appreciate the distinction between the two because they serve Coastal Zone Management objectives rather differently. Economic analysis is about the evaluation of choices about the use of resources, for example, between development and conservation, whereas finance is about mobilising funds to pay for projects. The choice between development and conservation may appear to be a financial issue for the developer who embarks on a coastal project and aims at a financial return, but from the point of view of the community as a whole, where longer term considerations have to be taken into account, cumulative impacts assessed and the interests of future generations secured, it is the socio-economic value of resources lost to development and the wider economic benefits of protecting these resources that are crucial to the design and implementation of appropriate coastal zone strategy responses.

Why Economic Analysis in Coastal Zone Management Strategies?

The use of economic analysis in CAMP projects targets two core concerns; a policy design and a policy implementation concern:

Policy design. Environmental impacts result from the fact that the vulnerable physical resources are a part of an active coastal economy. The use of resources in any particular way for direct income generation triggers impact that environmental actions seek to minimise or eliminate. To design appropriate management policies it is important to consider various development / conservation options and estimate the gains and losses (beyond the realm of ecology) in terms of the social and economic value of environmental quality and particularly the contribution of coastal resource quality to the economy. Without information on costs and benefits how will we know if we are over-protecting or under-protecting the coastal environment? Ministers and political decision-makers often react against environmental policies because they perceive them as conflicting with economic development that governments are expected to promote.

Policy implementation. It is often convenient to separate design from implementation. In reality design and implementation support each other. Sound policy design is a good start for effective implementation, while poor policy design makes implementation difficult. Implementation depends on communication of information that the policies to be implemented will save environmental resources that are valuable much beyond their intrinsic ecological value. Such information will increase awareness of the losses if the policies are not implemented, provide a basis for enlightened and constructive public participation and build up a common language serving as a bridge across environmental management and national policy-making.

How do We Incorporate Environmental Economics in Coastal Zone Management?

The incorporation of economics in Coastal Zone Management centres on the application of the techniques of Resource Valuation. It involves identification of the Total Value of environmental resources, including the direct, the indirect and the non-use values, and estimation of their monetary value through various techniques including the concept of people's "*willingness to pay*". Resource valuation is not an exercise of trying to put a money value on the ecological value of the environment, as sometimes supposed, but an analysis of the *social demand* for saving or improving environmental quality. Five crucial steps are important:

- Identifying the main areas of interaction between the environment and the economy, particularly those economic activities which are mostly dependent on environmental quality for their own performance (tourism, recreation, fisheries, etc.).
- Identifying the benefits of various levels of quality of resources for those activities (and the costs of reduction of quality) and to the extent possible expressing them in money values.
- Identifying also the non-use value of landscape or other ecosystems and estimating the public demand for their conservation through estimation of the "*willingness to pay*".
- Arriving at an approximation of the Total Value of resources as a tool for proposing and implementing development / conservation options under a comprehensive management strategy.
- Generating information and conclusions for political debate and public participation to create a common focus on the gains from conservation, relative to the losses resulting from alternative economic uses, necessary to justify proposed policy options and measures and secure their adoption.

Gap Between Objectives and Practice

Most recent CAMP Projects reflect a clear awareness of the applicability of economic tools. There are still through difficulties to be overcome. Successful application requires that the conclusions obtained from the application of economic tools actually influence policy design, just as economic tools should be adapted to serve CAMP objectives. An isolated economic study whose basic conclusions are not carried over into policy choices is of limited value.

Economics needs to engage in a constructive dialogue with physical science so that priorities and concerns from both may be harmonised under a common project framework. Economics is sometimes criticised as being less exact than biology, chemistry or engineering, giving results that may seem approximate and inconclusive in comparison with "science". Economic analysis, unlike biology or chemistry, often employs assumptions which may affect the accuracy of estimations. This is a problem that has to be solved by improving information and capacity building. But we must not confuse accuracy with policy-significance. The fact that there are considerable economic benefits accruing from conservation management measures remains highly significant for policy despite the difficulties encountered in their monetary estimation. It would be wrong to ignore the implications for policy design if the monetary estimation of benefits is within a range of approximation and sometimes given as "orders-of-magnitude". For example, if the development of a coastal site creates direct production benefits, say, 2.0 million Euros a year, while the "willingness to pay" for a regional park on the same site is estimated between, say, 5.0–10.0 Euros a year, it would be unwise to reject conservation because the range of estimate varies by 100%.

PART II:
Reports on CAMPs

CAMP "ALBANIA"

Alma Bako
Ministry of Environment
Tirana

Introduction

The Albanian coastal area, like other coastal areas, is defined as a fragile ecosystem and a need is stressed for an integrated management programme, which would provide the basis for a controlled development and management of its resources offering solutions to environmental problems. The Integrated Coastal Area Management Programme (ICAM) for the Central Albanian Coastal Region was the first main activity envisaged by the Coastal Area Management Programme (CAMP) and was proposed by the Albanian Government and the Mediterranean Action Plan (MAP) of the United Nations Environment Programme (UNEP). ICAM was a joint responsibility of the Committee for Environmental Protection (today the Ministry of Environment), on behalf of the Albanian Government, and the Priority Actions Programme Regional Activity Centre (PAP/RAC), on behalf of UNEP-MAP.

The Coastal Zone Management (CZM) Plan for the whole Albanian coastal area was implemented in co-operation with the Government of Albania and the European Union (EU), the United Nations Development Programme (UNDP), the World Bank (WB) and the European Investment Bank (EIB) through the Mediterranean Technical Assistance Programme (METAP) for the North and South Albanian coastal area (Phases One and Two). The work was carried out by PAP/RAC and the environmental planning firm Dobbin Millus International (DMI). CZM for the Central Coastal Region was carried out within the framework of UNEP-MAP CAMP for Albania.

The Agreement between the Government of Albania and UNDP was signed in September 1993. The activities to be implemented according to this Agreement were:

- Systemic and Prospective Sustainability Analysis (SPSA), development/environment scenarios for Albania;
- Development and implementation of legal instruments, including, among others, inventory and implementation of land-based sources of pollution and dumping protocols, Specially Protected Areas and implementation of Specially Protected Areas Protocol, and monitoring of marine pollution;
- Sectoral studies, including physical planning in seismically active zones, and the protection and management of historic monuments;
- Integrated Coastal and Marine Area Management (ICAM), with particular reference to the Durresi-Vlora region;
- Integrated Coastal and Marine Area Management (ICAM) of the Durresi-Vlora region;
- Water resource management study for the watershed of the Erzeni and Ishmi river basins;
- Geographic Information Systems (GIS);
- Carrying Capacity Assessment (CCA) for tourist activities;
- Environmental Impact Assessment (EIA); and
- Activities of the Environment Remote Sensing Regional Activity Centre (ERS/RAC): monitoring of coastal stability (1987-1992) in the Karavasta lagoon area relying on satellite remote sensing information, cartography and GIS facilities.

The project was undertaken by the Albanian Committee of Environmental Protection (today the Ministry of Environment) in co-operation with counterparts from various Albanian government institutions, universities

and NGOs. According to the National Environmental Action Plan (NEAP), the coastal zone management was one of the actions envisaged by the Government of Albania and other institutions to achieve the goals of NEAP.

The work on the preparation of the CZM Plan for the Durresi-Vlora region began in 1993. In the meantime, and taking into consideration the importance of CZM for the whole Albanian coastal area, the Committee for Environmental Protection (today the Ministry of Environment) requested, and a decision was made following this request, to fully co-ordinate and harmonise the UNEP-MAP-sponsored ICAM Plan for the Durresi-Vlora region (the Central one) and the World Bank sponsored CZM Plan for the North and South Coastal Region. In order to achieve this objective and, at the same time, to provide the continuity and the same methodology for the whole Albanian coastal area, the work on both projects was carried out by PAP/RAC and DMI for the WB sponsored project.

Specificities of the Albanian coastal area and the need for the preparation of a CZM Plan

After democratic changes in 1990, the change of the political structure and the free movement of population brought a lot of changes to the socio-economic structure of the country. The free movement of population was not allowed before 1990 but since then migration became a new phenomenon bringing a lot of implications. The coastal area of Albania has been one of the most influenced by migration flows, while the main observed trends are: urbanisation trend within the districts (the movement of rural population towards the major urban centres) and movement from other districts towards urban centres and coastal agricultural areas. Since 1990, the coastal area continues to be under pressure due to population flows (in the period 1990-1998, the urban population number increased for 31% and, for the first time, the rural population number was reduced for 13%). The annual population average is given in Table 1.

Table 1: Annual population average (in thousands)

POPULATION / YEARS	1923	1945	1960	1990	1998
Population total	804	1,103	1,607	3,256	3, 354
In the cities	128	235	474	1,176	1,543
In the villages	676	868	1,133	2,080	1,811

Source INSTAT – Albania

The preparations for the project started when the Albanian coastal area was relatively untouched and the development process had not started yet. But, taking into account the expected fast development, the impacts on the environment could affect the Albanian coastal area. Therefore, a need arose for applying the accumulated international knowledge and practice in environmentally sustainable integrated planning and management of the Albanian coastal area.

The importance of the coastal area compared with other parts of the country from both development and environmental point of view, on one side, and the problems that migration brings with, on the other, stressed the need for the preparation of the Albanian CZM Plan. The CZM Plan is considered a powerful tool for securing the rational use of natural resources, protection of biodiversity and possibilities for the implementation of the development strategies based on the concept of sustainable development.

a) A Short Description of the CAMP

Area taken into consideration

The Albanian 420 kilometres long coast is characterised by a high diversity due to the presence of the two seas, the Adriatic and the Ionian Sea. The different characteristics of these seas led to different definitions of borders, i.e. sandy beaches and huge areas of the Adriatic Sea led to the definition of wide boundaries and areas taken into consideration, while the Ionian part characterised by a rocky coast, has different borders. For this purpose, a flexible and adaptive approach to the definition of the coastal region of Albania was provided and developed. However, for practical reasons, the preparation of a management plan required a more precise definition of the area covered by the CZM Action Plan – in this case, the coastal region.

The borders of the area taken into consideration were defined according to the problem or issue being addressed. In order to define the coastal region, several sets of criteria were used depending on the nature of the problem or issue. The definitions of the coastal region are based on the following:

- the national level;
- the administrative division;
- the "ecosystem approach";
- landscape and scenic values; and
- management approaches.

- **At the national level,** the Albanian coast has been divided into three parts or "regions" perpendicular to the coastline: the North, Central, and the South region. This division has no obvious scientific basis, because the North and Central regions have the same characteristics as far as they belong to the Adriatic Sea, while the South region belongs to the Ionian one. This division is a result of the work done by various organisations concerned with the problems of the Albanian coast. Thus, the PAP-DMI team was dealing with the North and South Region, while the UNEP-MAP team was dealing with the Central Coastal Region.
- **The administrative division** includes the coastal districts (municipalities and communes), and is used for the analyses of the population, economy, urban and regional development, institutional structure, planning practice, etc.
- **The "ecosystem approach"** is used to define the coastal region for the analysis of natural resources use, biodiversity issues and environmental problems. It is essential that the analysis includes the entire area of an important ecosystem, such as watersheds or wetlands, lagoons and barrier island systems.
- **Landscape and scenic values** are important for the definition of opportunities of the coastal area for the future development. The relevant regional boundaries take into consideration the physical landscape and scenic elements that could have influence on the identification of projects and/or regional management guidelines. This approach is particularly important for the South Coastal Region.
- **Management approaches** define specific initiatives for the zones that run parallel to the coastline decided on the three basic regions: the narrow coastal strip, an intermediate region, and a hinterland region.

On the basis of the above principles, the hierarchy of spatial planning units was defined. The purpose of this hierarchy was to provide a rational structure for integrated planning of the Albanian coast, and in the definition and implementation of projects. For each CZM spatial level, an appropriate physical and natural resources management system and/or series of projects are defined. Apart from the two basic regions, this plan uses the following terms to define sub-units within the regions:

- zone;
- area; and
- site.

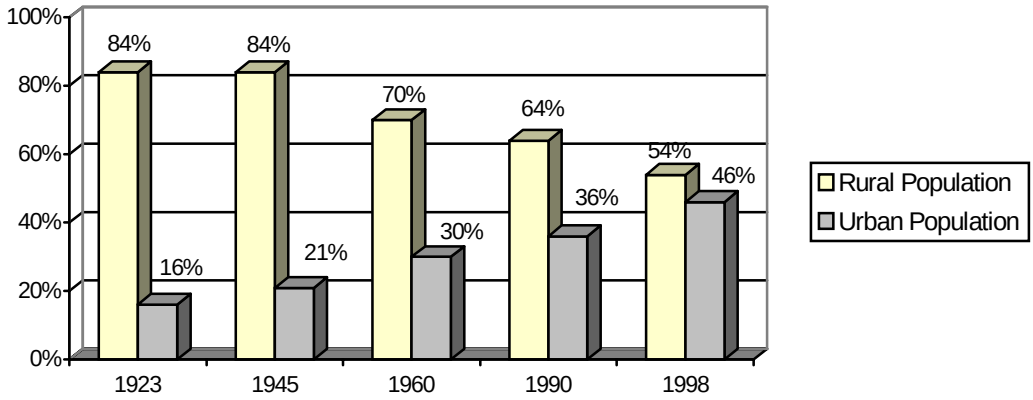
Depending on the importance, the proposals and projects are developed at one of the three spatial levels in each region: zone, area, or site. For management purposes, three interlocking zones running parallel to the coastline are identified: the coastal strip; an intermediate zone of a few kilometres width; and a hinterland zone.

Main issues

State of the environment and environmental problems

During the first phase of the CZM Plan preparation, the analyses of the Albanian coastal area showed that until 1990, this area was ecologically still intact due to controlled development, occurring mainly close to the foot of the hills and mountains to preserve the agricultural land. However, due to the fact that the coastal area was, and still is, attracting population faster than other areas of the country, competition is increasing over the use of coastal and marine resources, including the space. So, it is evident that man-made or natural events or processes can seriously affect the sustainable use of coastal resources. Some areas have already been impacted by human interventions before 1990 (industrial installations close to the coast) and some of them degraded very fast after 1990 (close to the main coastal urban and rural areas). Such impacts affect negatively the human health and cause the degradation of marine and coastal ecosystems.

Figure 1: The changes in the ratio of urban and rural population (in %)



Since 1990, the main trends of population flows, which still continue to affect the coastal area with a considerable intensity, have been identified. The main trends of the population movement have been recognised in the following directions:

- Rural-urban migration. The most important reason for this migration is to escape from the difficult living conditions in rural areas (Figure 1 gives the changes in the ratio of urban and rural population).
- Migration from the mountainous areas, mainly from the Northeast of the country, towards the coastal region (Western lowland and coast). It is observed that 37% of the shifted population belongs to these areas.
- Migration from small urban areas towards the bigger cities (mainly in the coastal cities).

Figure 2: Map of Albania

Recently, the situation in some parts of the coastal area is changing rapidly due to negative impacts of population concentration. The result is the degradation of the environment in these areas. Problematic is the situation in the coastal urban centres, where the extension of these centres is noticed due to the population growth. Sometimes, this extension tends towards the coastal strip, agricultural areas, environmentally sensitive areas, lagoons, wetlands, forests, etc. and not according to the existing plans.

Pressures and trends

The Albanian coastal area represents a very important and valuable area. For that reason, it is considered as a great richness of natural values, biodiversity, cultural heritage, etc. that need to be preserved, protected and developed.

Until 1990, the Albanian coastal area was in most of cases relatively untouched and with some ecologically pristine areas. However, this inherited value has been affected by population migration and the pressure of development activities (Figure 2).

The Albanian coast has its peculiar characteristics: a large variety of coastal habitats, river mouths, lagoons and

wetlands, beautiful sandy beaches of the Adriatic Sea and wonderful coastal, hilly and mountainous landscapes, marine habitats and characteristic gravel and rocky beaches of the Ionian Sea. The wetlands, agricultural areas and the whole lowland close to the Adriatic Sea have been altered to support the human interference, while the relatively rough Ionian Sea has more or less prevented the intensive urbanisation. Although the Albanian coast represents an area with relatively high ecological values, the human attractiveness and the pressure of migration is threatening it. To be mentioned is also the fact that the coastal area has been affected historically, too. The main sectors that brought implications in the coastal area and have been identified problematic are chemical industry and intensive agriculture. Another environmental problem is the industrial pollution. Although some industrial activities are closed down, they still continue to pose environmental and health problems. Some of the mines, industrial plants or mineral smelters have caused potential local contamination with heavy metals. It is evident that relatively large surface areas, in the territory of former chemical plants or enterprises and around them, have been contaminated due to the development of production activities for many decades, without taking into account the environmental protection criteria. These areas are located especially in the coastal areas, in the cities of Durres and Vlora (Figure 2). The inherited problem of historical industrial pollution and the identified existing problems are real threats for the present, and will still remain, if no interventions will be done.

In other words, in 1993, when the preparation of the CZM Plan began, the Albanian coast was relatively still untouched with limited interventions. But after 1990, the situation changed because the coastal area begun to attract population faster than other areas in the country due to opportunities that it offered. The free movement of population, which was not allowed before democratic changes, represented a negative factor regarding the consequences that this population flow could bring to the coastal and marine resources.

The following problems have been identified:

- soil erosion;
- coastal and marine pollution;
- urban, agricultural and industrial pollution;
- coastal urbanisation;
- privatisation of space and resorts;
- overexploitation of natural resources;
- improper siting of structures and settlements;
- degradation of the cultural and archaeological values in some areas;
- uncontrolled movement of people, as well as illegal occupation of land;
- legislation, institutional and implementation issues.

Period

The CZM Plan for the whole Albanian Coastal Area was implemented during the period 1993-1996. The first mission of PAP/RAC representatives to Albania (1993) in collaboration with the Albanian representatives from different governmental institutions concerned with coastal issues, identified the situation in the Albanian coastal area.

The agreement between the Government of Albania and the United Nations Development Programme (UNDP) was signed in September 1993. The first output of the ICAM for the Central Coastal Region (Durresi-Vlora) was the Coastal Profile of this region. This document, which was completed in December 1994, provided identification of major issues and an outline of the expected development processes. It was the result of several sectoral reports prepared on the basis of existing and available data and the work accomplished during the first and the second phase of ICAM.

During finalisation of the Coastal Profile, the Committee for Environmental Protection and PAP/RAC decided to prepare the Coastal Zone Management Plan for the Durresi-Vlora region instead of the ICAM Programme which was proposed first when the contract was signed between the Government of Albania and UNEP-MAP. The decision aimed to develop an appropriate methodology resulting in management proposals harmonising the CZM Plan for the Durresi-Vlora region with the CZM Plan for the North and South Coastal Regions. It was decided that the third phase of ICAM should include the preparation of detailed action plans for biodiversity protection and tourism development.

The First Phase of the CZM Plan for the North and South Coastal Region was completed in July 1995, and the Second Phase in February 1996. The work on the CZM Plan for the whole Albanian coastal area, which began in 1993 for the Central Coastal Region and continued for other parts in 1995-1996, was completed in

February 1996. The final document was presented to the Albanian governmental representatives in Tirana at a workshop held in April 1996.

Activities

The first activity carried out was the ICAM Programme for the Central Coastal Region (Durresi-Vlora). Its main objective was to propose the management of coastal resources on a sustainable basis. The major expected outputs of the Durresi-Vlora ICAM were:

- Coastal Profile of the Region, including identification of main environmental issues, and an outline of the expected development processes.
- ICAM Programme (which then evolved into the Coastal Zone Management Plan), including goals and strategies for the management of coastal resources on a sustainable basis, and planning of their physical interpretation within the context of expected development processes.

The Coastal Profile, which was mainly the result of a number of sectoral reports, provided identification of the physical environment, the natural resource base, the socio-economic context, physical systems and the institutional framework of the region highlighting the main potentials, the major physical processes and development patterns, conflicts between different uses and specific coastal management priorities in the Region. During the preparation of the sectoral reports, a lot of field trips were organised by mixed working groups composed of national and international experts. The objective of these field trips was the identification of main issues, i.e. problems and values of the area, meeting with local level officials and experts, etc. A very good co-operation and collaboration was provided during the preparation of the plan among Ministries, scientific institutions, etc.

To be mentioned is also that the document made use of reports produced within the MAP Regional Activity Centre for Specially Protected Areas (SPA/RAC) activities in Albania, as well as reports completed in the First Phase of the World Bank-sponsored Coastal Zone Management Plan for the northern and southern Albanian coastal regions. The Coastal Profile of the Durresi-Vlora Region was prepared on the basis of existing and available data, and the work done in the First and Second Phase of the ICAM Programme. The information needed for the preparation of this document was collected, processed and elaborated during the First Phase (end of 1993 and beginning of 1994), while the data and information missing were collected in the Second Phase of work on ICAM (the second half of 1994).

The joint engagement of the PAP/RAC and DMI in the project financed by the World Bank, which envisaged the preparation of coastal zone management plans for the two remaining (northern and southern) regions of the Albanian coast, enabled that these two almost identical projects be brought into line in good time. This also enabled that the findings of the Specially Protected Areas Regional Activity Centre (SPA/RAC) mission to Albania, in December 1994, be incorporated in this document.

The results of the harmonisation of the two projects were as follows:

- While respecting in full the requirements of the ICAM programme, the Coastal Profile of the Durresi-Vlora Region uses relevant information and outputs from both projects;
- To respond to the request of the responsible Albanian Institution (CEP), a decision was made to prepare, as an output of the third phase of ICAM, the CZM Plan for Durresi-Vlora Region instead of the ICAM Programme, as originally proposed;
- Also, it was decided that the third phase of ICAM include the preparation of detailed action plans for tourism development and protection of biodiversity areas, in harmony with other MAP activities in Albania, especially those carried out by SPA/RAC.

CAMP Albania, which started to be implemented in 1993, included as follows:

- GIS training course;
- ICZM training course; and
- on-the-job training.

Other activities to be mentioned under CAMP were:

- Water Resources Management Study for Erzeni and Ishmi rivers;
- Carrying Capacity Assessment (CCA) for Tourist Activities in Lalzi Bay;
- Environmental Impact Assessment (EIA) Study for the Ksamili Peninsula Project; and
- Training Programme on Geographic Information Systems (GIS).

b) Achievements of Aims and Objectives of CAMP, the Use of the Results and Proposals at the National/Local Level

The influence of CAMP on the solution of priority environment-development problems at the local level

The importance of the ICAM process was in strengthening of the sectoral co-operation, aiming at the preservation and protection of coastal ecosystems, and promoting sustainable development and wise use of coastal resources. The CZM Plan for Albania was aimed at solving priority environment and development-related problems.

It was identified that the capacities of the planning sector were mainly the local level capacities. At the same time, the plans prepared before 1990 were mainly master plans for the cities, detailed plans, urban and rural plans, while the regional plans were more or less missing.

The planning before democratic changes was mainly based on land-use plans, urban and rural plans and detailed plans in a situation when private property and markets did not exist. There were no experiences regarding the regional planning except some state policies regarding agriculture, industry, infrastructure, etc. The identified problems related to planning legislation and practice were:

- as to planning legislation framework, the responsibilities related to the type of planning were not properly defined;
- land ownership and privatisation uncertainties;
- inadequate planning capacities;
- economic analyses, market and environmental issues were not considered at the required level;
- weak public awareness and participation; etc.

Although according to the "Planning Law" and Planning Regulation, the form and the content of the plans were specified taking into consideration the economic and social development of the country, protection of nature and environment, conservation and enhancement of cultural, historical and archaeological monuments, some of these tasks had not succeed in the reality. Therefore, the new practices were introduced during the preparation of the CZM Plan.

After 1990, the coastal area was in most of cases untouched. The Governmental bodies (before democratic changes) were not much aware of the importance of protecting the environmentally sensitive areas, coastal ecosystems, etc., nor of promoting sustainable development in such areas.

Regarding environmental problems, these could be summarised as pollution problems, overexploitation of natural resources, water supply and waste management problems, inadequate environmental awareness, legal and regulatory framework, institutional and implementation issues, etc. Development issues could be summarised as uncontrolled movement of population accompanied with sprawl development, coastal urbanisation, illegal housing and tourist development without criteria, legal and regulatory framework, institutional and implementation issues, etc. The problems identified required immediate intervention in order to provide protection of biodiversity and cultural heritage and, at the same time, the promotion of tourism and other development activities in a sustainable way.

Although the CZM Plan could not succeed completely in all components, it influenced the solving of some priority environment and development problems. To this point, it helped identify environmentally sensitive areas in the coastal area, socio-economic processes and conditions, the new situation created after democratic changes and problems generated due to this situation, the main uses of the coastal areas and their impacts on environment, etc. This identification served to define development constraints and opportunities in tourism and recreation, agriculture, industry and other development activities promoting prioritising actions to be taken towards three components: biodiversity and environmental protection, tourism development and cultural heritage conservation, and institutional capacity building. The CZM Plan served for promotion of sustainable development of coastal areas.

Improvement of institutional capacities of ICAM

One of the main problems identified was legislation, institutional and implementation issues. Problems identified related to:

- insufficient environmental orientation of legal framework in general, and specifically environmental legal framework;

- limited institutional capacities to face the ongoing process of legal framework reviewing, completing and its implementation;
- limited experiences regarding management of coastal areas;
- limited regulatory framework regarding control of illegal activities; etc.

Analysing the above issues, the need arose for defining the organisational responsibilities, co-ordination and implementation. This is the reason why institutional strengthening was one of the three important components of the CZM Plan. While regarding strategic objectives, the enhancement of institutional capacities to manage and implement the recommended actions and projects, was one of the main objectives of the CZM Plan. In order to fulfil the objectives of the CZM Plan regarding biodiversity protection, environmental management and sustainable development, a co-ordinating administration, a regulatory authority and support system or mechanisms for implementation were needed.

The achievements regarding institutional strengthening can be summarised as follows:

- Increasing awareness of the environment in general and coastal environment in particular related to the importance of protection of environmentally sensitive areas and the rehabilitation of the degraded ones.
- Increasing awareness of the importance of Coastal Zone Management.
- Increasing awareness (although considered not sufficient) of the public in general and the public concerned, NGOs, and the private sector, while the involvement of public in the planning and decision-making process was considered unsatisfactory.
- Strengthening of capacities in treating and solving various environmental and development problems.
- Strengthening of capacities, increasing knowledge of institutions at the national and, insufficiently, at the local level regarding coastal areas through related literature, workshops, seminars, etc., but more successfully through on-the-job training of experts (working team members and consultants of different disciplines and institutions).
- The efforts to have a separate body (the Committee for Environmental Protection was part of the Ministry of Health when the CZM Plan was prepared) resulted in 1998 with the creation of the National Environmental Agency, directly depended on the Council of Ministers. Furthermore, last September, the new Albanian Ministry of Environment was established.
- According to NEAP-Immediate Measures, the establishment of environmental structures is promoted within the line Ministries and institutions at the local level. In the meantime, these structures have already been established in the Ministry of Public Works and Tourism, Ministry of Public Economy and Privatisation, some scientific institutions, etc. and are in the phase of establishment in other Ministries and institutions, too. The idea is to provide the required co-ordination and collaboration with the Ministry of Environment regarding the integration of environmental considerations in their policies, programmes, plans, projects, etc.

The role of the Ministry of Environment is of special importance for the coastal zone management of Albania, but, at the same time, could not be fulfilled successfully without the co-operation and collaboration of other related Ministries and institutions. This collaboration would be possible through a good co-ordination in implementing the CZM Plan.

Application of tools and techniques of ICAM

The tools and techniques used in the preparation of the CZM Plan were: field surveys; evaluation and assessment (Environmental Impact Assessment – EIA, Carrying Capacity Assessment – CCA); data management; Geographic Information Systems (GIS); development scenarios; etc. During the field surveys, identified were the environmentally sensitive areas, areas under pressure by population flows (coastal cities), polluted areas, degraded areas, etc. At the same time, these field trips all over the coastal area did not serve only to identify the situation, but also to discuss it in contact with local authorities, local experts, local population, etc.

The field trips were organised by mixed working groups composed of national and international experts. The objective of these field trips was the identification of the main issues regarding problems and values of the area, meeting with local level officials and experts, etc. The field surveys served to evaluate the situation in the coastal areas, to reflect on that, to compare the reality with the reports prepared by the experts and consultants, to identify changes, new factors of the transitional period, etc. The idea was to review the reports, confirm some problems and identify the new ones, exchange ideas, organise debates between national and international experts, local level officers, mayors, heads of districts, communes, etc., in the spot or in the offices of mayors and heads of districts while preparing the sectoral reports. To be mentioned are also the workshops organised

with experts of the working group and consultants, as well as with experts of different institutions related to coastal zone issues. The workshops presented the results of work in different stages, and scenarios, while discussions and exchanging of ideas contributed to improvements and better results, such as, the development scenarios, alternative scenarios, taking into consideration socio-economic conditions of the country, environment and natural resources, pressure on these resources, types of development, etc.

The use of GIS provided the opportunity to manage the information that already existed in the Albanian institutions and the one obtained during the work on CZM Plan. The establishment of GIS for the Central Coastal Region (Durresi-Vlora) started when a PC-based GIS was set up at the National Planning Institute of Albania, where there was the majority of the experts of the multidisciplinary team. The inclusion of GIS, mapping and regional analysis aimed to provide that the highest priority areas and issues are addressed following an "ecosystem approach" to developing the CZM Plan. The objective of the proposed GIS was to evolve from the inventory and mapping support in the first stage, to the planning and monitoring tool in making various spatial analyses later on.

Formulation and implementation of relevant national policies and strategies

The CZM Plan, oriented at the implementation of coastal management activities in Albania, contributed to the solutions of the national and local level problems. The CZM Plan was not only a tool for promoting sustainable development in the coastal area, but provided recommendations for formulation and implementation of relevant national policies and strategies.

The CZM Plan defined strategic objectives and aims for the whole Albanian coastal area. At the same time, and taking into consideration environmental issues and the promotion of development, there was a need for solutions by national and local level authorities according to specific national and local conditions. The CZM Plan helped identify the main problems and issues and develop mechanisms, tools and actions providing solutions.

The concepts of ICZM Plan could not be adopted by all actors and in general by a broader public. This fact led to the lack of support, and difficulties were created to welcome and, in some cases, to contradict it. Administrative and planning related levels have not been integrated, and often efforts could not be sustained. There were weak operational links between national, regional and local level activities.

Fast developments and changes in the coastal area went faster than plans that could not guide the developments. The authorities responsible for developing plans at the national level could not cope with such situation due to the lack of required human resources and sometimes even capacities. The situation at the local level was considered worst.

The inherited centralised system and difficulties to move towards decentralisation led to centralised competencies and difficulties to integrate the CZM strategy into the national one. At the same time, there were difficulties in harmonising the coastal area management policies with local and national policies, administration, and in providing support to their implementation. During the preparation of the CZM Plan, the strengthening of capacities was more or less achieved just with national level institutions, while the capacities at the local level could not be built and strengthened.

Based on the first positive results of the basic legislation in general, and environmental one in the domain of environmental protection, in particular, the preparation and adoption of a series of environmental regulations and standards is envisaged in the National Environmental Action Plan (July 1993). Although this document has not taken into account some particularities of the Albanian Coastal Zone, it represents a more holistic and integrated approach to manage the coastal resources properly.

Last year, the NEAP was prepared (it is, in fact, a review of the existing one taking into account the changes occurred since 1993) where the main strategies were defined beginning with the national strategy for sustainable development, tourism development strategy, etc. According to this NEAP, the line Ministries and institutions have their responsibilities, too. To be mentioned are also the Local Environmental Action Plans, and Energy Strategy. According to NEAP-Immediate Measures, the establishment of environmental

structures in the line Ministries and institutions, will, at the same time, help this process. In other words, some steps are taken towards providing the required collaboration. But, this collaboration is not completed at expert level and success could not be achieved without the involvement of all actors.

Dissemination and exchange of experience contributing to the formulation and implementation of policies and strategies at the regional level

The Mediterranean Action Plan (MAP) has already established a co-operation and collaboration with the Mediterranean countries in implementing the CZM through one of its Regional Centres, the PAP/RAC. PAP/RAC has played, and is still playing, an important role in implementing the CZM not only in different countries, but, at the same time, in promoting co-operation between the neighbouring countries, and at the regional level in the Mediterranean. Such opportunities have been offered and discussed during the different meetings of representatives from the Mediterranean countries. At the same time, another way of being familiar with and profiting from the experiences of Coastal Area Management Programmes (CAMPs) in other countries has been the dissemination of materials published by PAP/RAC regarding these CAMPs, the different Guidelines, etc. The best way of a good and promising initiative, which has already been discussed and seems to be successful, is the promotion of a group of countries in the Mediterranean with similar characteristics, such as, for example, the countries bordering on the Adriatic Sea. This kind of co-operation has offered opportunities to the countries that have already completed CAMP projects, to exchange and share experiences with specific problems, policies, etc. and to provide information and experience for other countries in the Mediterranean that have not had the opportunity for implementing the CAMP projects.

Training and capacity building of local and national experts

During the process of problem identification, the level of capacities of professionals in the domain of protection and enhancement of the environment was considered limited. Although there were identified very good experts in sciences, such as, biology, hydrology, geography, geology, etc., and experiences in the multidisciplinary approach to planning, there were not enough experiences regarding management. As it is mentioned above, the inherited experiences regarding planning were related mostly to urban and rural plans where were applied the knowledge and experience in the multidisciplinary approach except the economic analyses, market and environmental issues, which were not considered at the required level. The identified problems stressed the need for building and strengthening of capacities for the CZM in professional institutions to introduce a multi-sectoral approach in the management of coastal and marine resources and areas.

A joint working team of PAP/RAC and the Albanian experts mostly from the National Planning Institute in Tirana performed the work for the preparation of the CZM Plan. During the preparation of sectoral reports, consultants were involved from different institutions, such as the Institute of Hydrometeorology, Forestry, Soil Research, Fishery, Hydrogeology, Seismology, Monuments of Culture, Infrastructure, Geographical Studies Centre, etc. Taking into account the multidisciplinary team of experts, the aim was to provide the education and training of this team regarding the CZM process. The capacity building through appropriate training was carried out not only in the Committee for Environmental Protection as a leading administrative co-ordinating institution for environmental issues, but also in other institutions, which were considered important for the CZM process.

To this point, the recommended forms of capacity building were:

- seminars on the CZM process for decision makers and professionals on the national, regional and local levels;
- workshops and training courses in the country addressed to experts working at all levels in administrative, scientific and professional institutions; and
- on-the-job training, one of the most efficient forms of education on concrete tasks and activities related to sectoral and integrated components of CZM.

In order to train the experts and prepare a real working team for the preparation of the CZM Plan, a seminar on the Integrated Management of Coastal and Marine Areas (ICAM) process was organised at the initial stage of the work. At the same time, training courses were organised on Geographic Information Systems (GIS) in Tirana, and in Split (PAP/RAC). The idea was to train experts in GIS and, at the same time, to apply it for the purposes of the CZM Plan. The information gathered and the use of GIS techniques were taken into consideration during analyses and in obtaining the final results of the CZM Plan.

Besides the above-mentioned training, others were organised regarding:

- Water Resources Management Study for Erzeni and Ishmi river;

- Carrying Capacity Assessment for Tourist Activities in Lalzi Bay; and
- Environmental Impact Assessment (EIA) Study for the Ksamili Peninsula Project.

Finally, although a lot of activities have been undertaken to strengthen the capacities, this process could not provide the training of all required experts, involvement of decision makers at the local level, etc.

Co-operation, exchange of experience and offering results, methodologies and procedures to other regions at international level

Since 1996, when the CZM Plan was finalised, a lot of activities have been organised and several Albanian experts from the working group invited to present the CZM Plan and the results achieved. Although CAMPs have been performed in many countries, CAMP Albania has its own particularities. In the Mediterranean context, Albania represented a specific example of a political system before 1990. Political changes after 1990 opened new opportunities towards the country's development. The peculiarities are related to the lack of private ownership, entrepreneurship and free movement of people for more than 45 years. The preparation of the Plan began in 1993, when in Albania a lot of changes were occurring, including the change of the political and socio-economic structure.

In comparison with other countries, the peculiarities of the Albanian coastal area taken into consideration, led to a specific CAMP. Albania was a country that derived from a centralised economy to a decentralised one. The private property was missing, and the free movement of population was not allowed before 1990. After the nineties, the country was characterised by the uncontrolled flow of population affecting the coastal area, unsatisfactory considerations for environment and natural resources, etc. The CZM Plan had to consider all these factors, come up with its aims and objectives, and define the right and proper strategies in order to succeed. The experiences gained during the preparation of the CZM Plan, and the CZM Plan itself, represent a very interesting example which should be taken into consideration. These experiences are important mainly for the countries with developing economies, which have more or less similar characteristics, but there is interest even by those countries that already have developed national systems regarding ICZM. Exchange of experiences, sharing of ideas regarding methodologies, procedures, etc. during international events, have already provided opportunities to co-operate and collaborate offering better results and a guaranteed success at the national level in developing strategies, regulations, instruments, etc.

To that end, several seminars and workshops have been organised of which to be mentioned are:

- "Towards a Demonstration Programme for ICM in Central and Eastern Europe and Newly Independent States" ICMCEENIS Workshop organised in June 2000, in PAP/RAC Split, Croatia;
- NATO Advanced Research Workshop, organised in July 2001, Ljubljana, Slovenia, etc.

Sharing of ideas was not only to represent what has been done and achieved in the CAMPs in different countries, but to promote new initiatives at the national, regional and international level, and bilateral and multilateral co-operation towards new challenges regarding ICZM. To be mentioned are also new initiatives of the MAP-PAP/RAC for the period 2002-2003 proposed programme and the recent developments regarding METAP in order to promote strategies for capacity building in METAP countries tending towards the solutions to find out the ways how to move from concept of ICZM to its implementation.

c) Follow-up Activities and the Main Actors and Donors in Implementing Them

The Coastal Zone Management (CZM) Plan for Durresi-Vlora, carried out within the framework of UNEP-MAP Coastal Area Management Programme (CAMP), covered the Central Part of the Albanian coast. Following the request of the Committee for Environmental Protection (today the Ministry of Environment), and taking into consideration the importance of the CZM Plan, the MAP CAMP Albania triggered a similar project – the CZM Plan for the North and South Coastal Regions of Albania. The role of PAP/RAC was to act as a lead institution in the plan preparation. The main actors involved in the CZM Plan for the whole Albanian coastal area were: international organisations, such as, the European Union (EU), the United Nations Development Programme (UNDP), the World Bank (WB) and the European Investment Bank (EIB) through the Mediterranean Technical Assistance Programme (METAP) and UNEP/MAP/PAP; and national actors, such as, the Albanian Committee of Environmental Protection (today the Ministry of Environment), the Albanian government institutions, universities, NGOs, local government and population. Another activity to be mentioned is the preparation of a Carrying Capacity Assessment study for Rodoni-Lalzi Bay, which was prepared by the Albanian authorities.

The Ministry of Environment has undertaken activities to adopt the ICAM strategy based on the Albanian CZM Plan, developed by PAP/RAC as part of the World Bank project. UNEP/MAP sponsored the ICAM Plan for the Durresi-Vlora region (the Central one) and the World Bank sponsored the CZM Plan for the North and South Coastal Region.

The CZM Plan is considered a success and in order to provide its sustainability, initiatives are taken towards follow-up activities. Since 1996, when the CZM Plan was completed, there is a relatively long period and taking into consideration the pressures towards the coastal area, some initiatives are promoted in order to provide its continuity. To be mentioned are:

- Project on "Management of the Karavasta Lagoon";
- Kune-Vain lagoon project. In the MedWet 2 (approved by the European Commission in 1996), Albania was one of the five countries involved. A major part of the MedWet 2 project was the development of a new approach to socio-economic aspects of wetlands, including their economic valuation, and the integration of these aspects in all management activities. The pilot site project for Albania was Kune-Vain lagoon;
- UNDP/GEF Project (on-going) on: "Conservation of Wetland and Coastal Ecosystems in the Mediterranean Region" (Vlora region, Figure 2).

Objectives: The wider objectives of the project relate specifically to the field of biodiversity, as well as to the management of protected areas. Specific tasks and activities to achieve the project objectives include the legal framework gap assessment and relevant recommendations, training on different issues, policy documents preparation, site management plan preparation and their implementation, interventions to improve the situation to the project sites, and public awareness, as well.

d) Assessment of the Management of the CAMP

The CAMP project in Albania is considered as a means of integration of activities in the local level projects and different sectors. The main issues identified needed relevant strategies. The concept, strategy and measures to achieve sustainable development are defined in the CZM Plan emphasising the actions (relevant plans and projects) which needed to be carried out. The planning zones were defined and a number of Coastal Investment Projects proposed, containing biodiversity protection, tourism and infrastructure development, and institutional strengthening as their basic components. Each proposed plan or project is accompanied by a list of activities related to the main axes of intervention. Regarding priorities for the follow-up, the point of departure for determining priorities within the phases of the project and in continuation of the activities for the integrated management of the Albanian coastal area, was a decision on criteria for according priorities to the elaboration of the complex Coastal Investment Projects and Master Plans.

The CZM Plan, although being considered as very important and necessary for the Albanian coastal area, could not be fully adopted and implemented due to problems related to the management of the coastal zone. In general, the identified problems were insufficient knowledge and lack of experiences in coastal management issues. At the same time, there were problems regarding the coastal processes, which were not fully understood and explained. The co-operation and co-ordination was considered weak, and there were difficulties related to public involvement. Although the local level actions are considered very important according to the CZM Plan, issues related to coastal policies, legal instruments, methodologies of management need more attention and seem to be more important.

During the preparation of the CZM Plan for the Central Coastal Region (Durresi-Vlora), which was prepared in a relatively long period, efforts made to involve public were insufficient. Although the CZM Plan for the North and South Coastal Region was prepared in a shorter period of time, such situation could not be improved. So, it is evident that such an important issue that guarantees success, was more or less not taken into account. This was mainly because of the lack of a right vision and required level of knowledge regarding the coastal issues, in general, which, then, led to the lack of the active involvement of public.

The preparation of the CZM Plan has been done according to a multidisciplinary approach, while the reality of the sectoral integration was not at the required level. The problem of the weaknesses regarding integration of activities is related to specific actions promoted by each sector separately, neglecting sometimes the CZM Plan. The development of sectoral policies, plans and programmes has proceeded without introduction of Strategic Environmental Assessment.

Co-operation between the national and local authorities was one of the main issues of the project, which was provided partially during the preparation of the CZM Plan. Weak capacities regarding planning and

management of coastal area at the local level and unsatisfactory level of awareness did not ensure much space for such co-operation. This gap between the two levels (national and local) limited responsibilities of the local level to decide, and their limited capacities did not provide a real co-operation.

Public awareness and involvement is considered a weak point of the CZM Plan in Albania. First, the level of awareness is related to the weak work since the beginning of the plan preparation. According to lessons learned, the success of the work is guaranteed if the relevant public is invited to participate in the formulation and then implementation, and follow-up activities. Although in Albania some NGOs were invited during the preparation, and not formulation of CZM Plan, this is considered insufficient. As mentioned above, the most important relevant national authorities were involved in the process of CZM Plan preparation. At the same time, scientific institutions were successfully involved, too. The role of the national authorities was of high importance although it was not considered a fully required involvement. The reason is that these authorities were expected to integrate the elements of the CZM Plan into sectoral national policies. Although such integration could not be done completely for different reasons, some progressive elements were evident. Except national authorities, scientific institutions and partially NGOs, and other actors could not be involved successfully. Regarding local authorities, some examples of their involvement need to be mentioned, but they were insufficient. At the same time, co-ordination between the national and local level was not considered at the required level, too. The result was the impossibility to integrate the CZM Plan elements into local plans and local actions.

While donors were more or less successfully involved, the economic actors were not taken into consideration, and the public-private partnership, which is considered a very important issue, was not promoted. Finally, media was not involved, so information dissemination, raising awareness, etc. was not provided.

e) Shortcomings and Strong Points of and Lessons Learned from the CAMP

The CAMP project in Albania belongs to the second cycle of the CAMP projects in the Mediterranean. The period from the first stage (country pilot projects) to the first cycle, and, then, to the second one, served to the improvement of the structure and scope of such projects.

Strong points

First, before giving some of the strong points of the CZM Plan, it is important to mention again the importance of this plan for Albania. One of the first strong points of CAMP Albania is taking into consideration the whole Albanian coastal area under this project. This was an opportunity to deal with the entire coastal area, with the characteristics to involve all components, integrated projects, integrated management actions and finally follow-up for plans and programmes. The CZM Plan provided:

- promotion of co-operation between national authorities, scientific institutions, experts, etc.;
- promotion of formulation of relevant policies and strategies at the national level;
- promotion of sustainable development;
- training of experts;
- increasing awareness regarding environment and coastal issues (although not at the required level);
- strengthening of capacities at the national level: the line ministries, institutions, etc. concerned with the coastal area;
- transferring international knowledge and experience;
- promotion of co-operation with international funding institutions; etc.

Shortcomings

One of the main shortcomings, which is not related to the weaknesses of the CZM Plan, but influenced in its implementation, was the weak co-ordination between the different levels, gaps and overlapping. The CZM Plan objectives are considered more or less general. Although the involvement of public is considered a very important issue to provide the implementation of the CZM Plan, its involvement was not satisfactory. This was one of the difficulties in the implementation of the CZM Plan. Sometimes, it is difficult to involve all interested parties, and for the countries like Albania it seems to be more difficult to provide such involvement taking into consideration the level of awareness. Such “failure” on one side, and the fast changes happening on the other, prevented and slowed down the implementation of the CZM Plan. Another weakness that prevented the implementation too, was a relatively unstable political situation and the incoherent regulatory and legal framework.

The preparatory phase of the CZM Plan (preparation of sectoral reports and the coastal profile) for the Central Coastal Region (Durresi-Vlora) is considered long, while the preparatory phase of the CZM Plan for the North and South coastal area was finalised in a shorter period. The level of awareness regarding environmental issues in general and coastal issues in particular, is considered low. During the preparation phase of CZM Plan and thereafter, it was not possible to increase public awareness in general, except in cases mentioned above. This issue is related to the weaknesses regarding the insufficient information system. A complete legal framework regarding the coastal area (although there are other laws referring to coastal area issues, gaps, overlapping, etc. were identified) is lacking.

Population issues, such as, the fast increase of population, changes of the structure, pressure created, etc were not adequately taken into consideration. Urbanisation and land-use conflicts are present in most cases but failed to be satisfactorily integrated into management policies. While human impacts on natural ecosystems have been treated in a satisfactory way from the point of view of identifying conflicts (strong), economic analyses of environmental impacts are lacking in general (weak).

As it has already been mentioned, Albania was a highly centralised country before 1990, and after 1990, it was difficult to escape easily from that situation. Nearly a ten-year period was needed to pass step by step through a long process towards decentralisation. Although the Law No. 8652 on "Organisation and functioning of local government", dated 31. 07. 2000, is approved, it will take time to reach the required level of decentralisation. The above-mentioned reasons could not provide a complete success of the CZM Plan. Also, difficulties were identified in providing important tools for implementing the coastal area management, such as, monitoring, Environmental Impact Assessment, information system, economic instruments, legal and regulatory instruments, etc. These instruments are not institutionalised yet, and prevented the implementation of the CZM Plan.

f) Suggestions for the Improvement of CAMP Formulation, Implementation and Follow-up Activities

The preparation of the CZM Plan was no doubt a success for Albania. But, the success of the CZM Plan on one side, and difficulties in its implementation on the other, stressed the need for problem identification in order to propose suggestions for improvements. Difficulties related to the insufficient public awareness to understand environmental and coastal issues, capacities to further develop and detail the CZM Plan and to draft strategies, policies, programmes, plans and projects in related sectors, and in the meantime the population dynamics in the coastal area, weak public involvement and weaknesses regarding follow-up activities considerations, did not leave enough space for continuity, except some activities undertaken, which were in most of cases uncoordinated and did not help the process of coastal zone management.

Although most of CAMPs have more or less similar characteristics, each country has its particularities, which are important to be known and analysed in depth. If such particularities are not given attention, the results will not be satisfactory. The weaknesses mentioned above regarding the Albanian CZM Plan and the results regarding its implementation must be taken into account in these analyses. What happened in Albania in the meantime? As it is mentioned above, the population movement trend towards the coast is accompanied with the growing pressure on the coastal area in a short period. According to the analyses done during the preparatory phase of the CZM Plan, the population problem was raised, and fast actions would be promoted. That's why it is important to formulate and adopt right strategies, according to specific cases, in order to provide implementation and to guarantee success. The new circumstances created during these years after the CZM Plan preparation, represent a new image of the coastal area: some of the environmentally sensitive areas are not the same, the activities and "developments" are, among others, increasing and stressing, so it's time for new considerations and interventions which means money and time consuming.

The successful implementation of the CZM Plan would be provided, if some key issues were taken into consideration. Another important issue to be discussed is the involvement of all actors and the definition of responsibilities "Who is doing what". In conclusion, except the weaknesses during the preparatory phase of the CZM Plan, the provision of the funds through partners involved in this process is important, too.

Not all the staff required for project implementation and co-ordination was trained, but it was mainly towards the training of the staff at the national level. Although the CZM Plan in Albania included the majority of components, it could not involve all stakeholders, particularly NGOs and general public, and lack of financial resources. The participation of local authorities during the preparation of the CZM Plan, and particularly in the formulation of the strategies, was very limited. The participation of public could not be

provided due to the lack of awareness, lack of interest during the preparation phase of the CZM Plan, and weak involvement of local authorities.

Finally, what happened in the meantime in Albania was fast settling of the coastal area changing very fast the situation in a very short period. Follow-up activities should have been guaranteed since the beginning of the project. The failures of the CZM Plan have been related to the difficulties in its implementation.

g) Summary, Including Recommendations

The opportunities offered to Albania for the preparation and successful elaboration of the CZM Plan provided a base for the possible sustainable development of the coastal area. The moment for starting the preparation of the CZM Plan in Albania was very important; it was a very delicate situation regarding the coastal area when a lot of mistakes could be done.

Although some results are achieved, a lot has to be done in order to provide a sustainable development of the Albanian coastal area. Since co-ordination is identified as one of the weakest points, a multi-level co-ordination must be provided, such as, co-ordination between various components of the governmental bodies (national, regional-district and local) and co-ordination, which integrates decision making at the same administrative level (different line ministries at the national level, or departments of these ministries at the regional and local level). In order to achieve this co-ordination, it is necessary to establish a co-ordinating body with the representatives of authorities from the related ministries, such as, the Ministry of Environment, the Ministry of Agriculture and Food, the Ministry of Public Works and Tourism, the Ministry of Transport, the Ministry of Public Economy and Privatisation, the Ministry of Local Government, etc. A very important issue to be considered is the participation of all interested parties (actors) concerned with coastal issues.

As to the importance and role of informing the wide public about coastal issues, there is a need to increase, first, the level of public awareness in order to provide their involvement in the process. Such opportunities to the public, local authorities, NGOs, local population, private sector to contribute to the plan preparation and implementation will guarantee success. In order to provide their participation, it is necessary to identify the stakeholders and to promote the work in groups in order to increase awareness, first, regarding the importance of the protection of the environment and natural resources and sustainable development of the coastal area. The work in groups will be effective, if it will be organised in a way as to make differences regarding selection of groups, defining methods of work appropriate for each group, etc. According to the work related to growing awareness, the success of their active involvement in the process will be guaranteed.

The involvement of private sector and promotion of private-public partnerships would be a priority, too. The involvement of private sector is considered very important taking into account its strengthening and the role that this sector plays in the country (private sector share of GDP, see Table 2). As far as financing of projects seems to be a problem regarding the implementation, such involvement is considered very important.

Table 2: Comparative data for the countries in the region

Country	Population (in million June 1999)	Private sector share of GDP (% June 1999)	Privatisation of big enterprises	Privatisation of assets and small enterprises	Property structure and restructuring	Price liberalisation	Trade and Foreign exchange	Competition	Banking reform and liberalisation of interest rates	Capital market and financial non- banking institutions
Albania	3.2	75	2	4	2	3	4	2	2	2-
Bosnia	4.3	35	2	2	2-	3	3-	1	2+	1
Bulgaria	8.2	60	3	3+	2+	3	4+	2	3-	2
Croatia	4.5	60	3	4+	3-	3	4	2	3	2+
FYROM	2.0	55	3	4	2	3	4	1	3	2-
Romania	22.4	60	3-	4-	2	3	4	2	3-	2
Slovenia	2.0	55	3+	4+	3-	3	4+	2	3+	3

Source: Transition Report 1999, EBRD. Evaluation system: from 1 (little progress) to 4+ (the standard of industrialised European countries)

Another possibility is the identification of follow-up activities and the donors during the preparation phase of the projects. At the same time, the capacities should be strengthened for the preparation of pre-feasibility studies for the projects to be financed by different donors.

The building and strengthening of capacities at the local level is considered necessary taking into account the approval of the Law No. 8652 on "Organisation and functioning of local government", dated 31. 07. 2000. According to this Law, a lot of competencies are given to the local government in order to provide the required decentralisation, where municipalities gain administrative authority to manage government structures, including establishment, reform, and merger of these structures. Before the approval of this Law, until one year ago, the role of local government was considered reduced, while the intervention of the central government very high. Taking into account the importance of decentralisation, necessary to provide sustainable development, a lot of competencies should be given to the local authorities, but they still lack the required capacities.

As the situation in the coastal area is changing rapidly, an evaluation of the existing environmental and socio-economic situation is needed analysing opportunities and constraints. In order to avoid overlapping and to provide continuity and follow-up activities from different donors, it is important to contact and involve donors.

Taking into account the changes during the period 1996-2001, and the situation created, the adoption of the CZM Plan is very important, as well as the implementation of this strategy. Action plans must be promoted, especially for the identified areas under pressure, such as the coastal cities, where the urbanisation process is more evident. Finally, these action plans must be considered as a priority to be supported financially, so funding needs to be mobilised for their implementation. The idea to establish a lead agency in Albania regarding the coastal management seems to be very good based on the experience of some countries where these agencies are focused on planning and policy, providing support (financial and technical) to more local levels of government who actually develops programmes that can be implemented.

There are other very important elements to be taken into account, such as: involvement of all stakeholders and maintaining their involvement through different phases of the project; promotion of a participatory approach; involvement of all actors since the beginning of the planning and management process, which will provide a sustainable use of the coastal area; provision of financial means; enforcement and implementation of the legal framework; approximation with the EU legislation; etc. At the same time, co-operation between international programmes that tend to a better co-ordination of action in every country and in the region, co-operation and co-ordination between RACs and other possible co-operations, too, should be provided at the international level.

Specific recommendations regarding the Albanian CZM Plan

As it is mentioned above, since 1996, when the CZM Plan was finalised, the situation has changed so interventions are needed immediately. The attention has to be concentrated towards the following:

- setting up a legal framework related to coastal area, in order to avoid negative impacts and create a basis for the future planning and management;
- providing rational management of natural resources;
- providing better management of environmentally sensitive areas;
- providing sustainable development of the coastal area, defining appropriate potentials and capacities.

<u>The proposed steps to be undertaken are as follows:</u>

- the adoption of the CZM Plan strategy;
- the implementation of the strategy;
- integration of the CZM Plan into the National Spatial Strategy;
- project identification for funding by the donors.

<u>To achieve such recommendations, it is needed as follows:</u>

- the assessment of the existing environmental and socio-economic conditions in the coastal area, capacities and opportunities;
- preparation of action plans for the priority areas identified with urbanisation problems;
- preparation of action plans for tourism development;
- preparation of management plans for the Environmentally Sensitive Areas;
- preparation of the Coastal Law;
- identification of the projects for funding.

CAMP "KAŠTELA BAY", CROATIA

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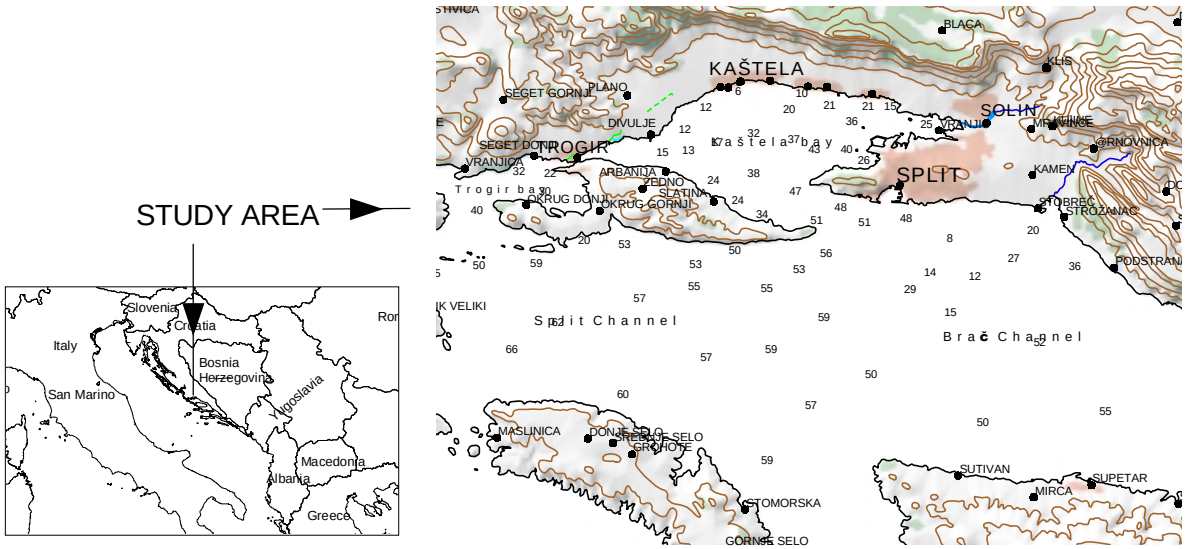
1. Description of the Area

1.1. General

A wider area of the Kaštela Bay, covering the municipalities of Split, Solin, Kaštela and Trogir, is the largest one on the Croatian coast (Figure 1). It represents an economic and territorial unity, with the city of Split as the dominating centre. The city of Split is the second largest city of Croatia and the administrative centre of the County of Split-Dalmatia. The Kaštela Bay is located at the central part of the Croatian coast on the eastern part of the Adriatic Sea (Figure 1). The study area encompasses the Kaštela Bay and the neighbouring Split and Brač Channels, as well as the associated coastal strip. The coastal plain around the bay is rather narrow (1-3 km) covering approximately 14,500 hectares, with a high-mountains region in the immediate hinterland. The bay is oval shaped and is enclosed by the Split peninsula in the south-east and the island of Čiovo in the south-west. The island of Čiovo is rocky and hilly, while the Split peninsula is smooth and ends in the Marjan hill. The main entrance into the Bay is between the Split peninsula and the island of Čiovo, while a smaller one is between the island of Čiovo and the mainland in Trogir. The Brač and Split Channels lay between the mainland and the island of Brač, and the islands of Čiovo and Šolta, respectively. The climate of the area is of the Mediterranean type, characterised by dry summers and wet winters. Average annual air temperature is 16°C. The long-term annual average rainfall is 837.2 mm. Geologically, the area forms part of a large Cretaceous-Tertiary sedimentary complex, which belongs to the structural unit of the Adriatic cretaceous carbonate sediments.

Figure 1: Position of the area of interest



The natural vegetation of the area was evergreen forest, dominated by holm-oak. The Kozjak mountain ridge and higher Mosor slopes were covered by sub-Mediterranean deciduous forest. Now there is a changed vegetation cover. The coastal plain has become almost completely covered by houses and agricultural areas, while steeper slopes are covered mainly by secondary vegetation of scrub, or have completely denuded surfaces. There are two small typical karst rivers in the area: Jadro, located in the eastern part of the Bay with average annual discharge of 9.5 m^3/s (average minimum flow is 4.0 m^3/s, and average maximum flow is 66.0 m^3/s), and Žrnovnica in the easternmost part of the study area with average winter flow of 5.0 m^3/s. Both rivers are used as fresh water sources for the entire area.

1.2. Socio-economic Conditions

The total population of the narrow coastal area has tripled over the past half a century, reaching 284,000 inhabitants in the year 1991, while the estimated population for the year 2015 will be 355,000. Split is the second largest town of Croatia. Its population is about 192,000 inhabitants in accordance with population census from 2001. In the eastern part of the bay is located the town of Solin (19,000 inhabitants) lying in the area of the ancient town of Salona, while in the westernmost part of the study area the medieval town of Trogir (13,000 inhabitants) is located. Between these two towns, along the northern coast of the Bay, Kaštela are located (33,000 inhabitants), in the past seven separate villages, today developed in one unity. The total population of the area today amounts to about 257,000, which represents about 5.8% of the total population of Croatia, while the surface area represents less then 2% of the national territory (Table 1). The main feature of past demography is a continuing high increase between 1953 and 1981, when the population doubled. During that time the population growth rate was 2.31%. This growth rate was much higher than the national annual growth rate (0.59%). The higher annual growth rate was mostly the result of the local rural-to-urban migration, which was typical for the whole country, as well as the migration from other less developed areas.

Table 1: Population and population changes in the area

	1948	**1953**	**1961**	**1971**	**1981**	**1991**	**2001**
Population (000s)	114.60	127.80	151.90	203.50	255.70	284.80	257.00
% population of Croatia	3.03	3.25	3.65	4.60	5.56	-	-
Annual growth rate (%) in area	2.18	2.15	2.90	2.28	2.31	1.08	-
Annual growth rate (%) in Croatia	0.81	0.69	0.62	0.39	0.59	-	-

The fast population growth was accompanied by the development of tourism, industry, traffic and trade. The all industrial activity is concentrated at the north-eastern coast of the Bay, between the towns of Solin and Kaštela and on the north-eastern coast of the Split peninsula. The main industries are a shipyard, a brewery, food processing, and soft drinks production. The total employment in the industrial sector was 38,500 workers. Tourism in the area is mostly of a summer-season character, despite the fact that the area is rich in ancient and mediaeval monuments. The principal tourist facilities are located in Trogir and Kaštela area, as well as in narrow coastal belt of Split. The registered capacity was 25,500 beds, and the total number of visitors was 386,000, which amounts to about 1,900,000 overnight stays (1989). The area represents an important traffic crossing point on the central Adriatic coast. The Split harbour is connected with the hinterland by railroads, as well as roads running along the coast, and to the hinterland. The passenger port is the single connecting point for the central-Adriatic islands with the mainland, as well as with other Adriatic towns of Croatia, Italy and Greece. The Split airport, located between the towns of Kaštela and Trogir, is open for domestic and international traffic. It is important for the transfer of foreign tourists. The coastal plain along the northern coast of the Kaštela Bay has always been important for the production of early fruits, while in the past 20 years a rather high green-house capacity for vegetable and flower production has been constructed in the western part of the area.

1.3. Main Problems and Conflicts

The analysis of the development processes showed that the past development of the area was based on the practice of exploiting the natural resources as being of unlimited capacity. The basic criterion of growth evaluation was the growth of separate development variables (population, income, production, etc.) instead of development in an integral sense (quality of life, environmental protection, protection of cultural heritage, etc.). Such development created numerous conflicts. There has been a disproportion between demographic and economic growth, between economy development and natural resources, between historical heritage and urban development, between separate activities and people of different cultures that moved from different areas. In less than four decades, this attractive and beautiful area with high tourism potential turned into an extremely degraded environment with highly polluted coastal sea, inadequate economic structure, inadequate urban infrastructure and numerous demographic and social problems.

The area of the Kaštela Bay is known as one of the most polluted areas of the eastern coast of the Adriatic. The environmental pollution is a consequence of fast industrialisation and urbanisation without development

of appropriate urban infrastructure, in particular of a waste water collection and disposal system. The public sewers in each of the towns consist of numerous small subsystems; each of these consists of a gravity sewer collecting waste and rain waters, and a coastal outlet discharging the water into the coastal sea. They cover only a part of the town nucleus, and approximately 25% of the population is served by the sewerage system (in Split 60%). Buildings not served by the public sewerage systems have individual, mostly permeable septic tanks. Because of this, there are several large and more than several hundred small outlets into the area. Obviously, there is no waste water treatment in the area. Increased amounts of both urban and industrial waste waters are disposed untreated into the coastal sea resulting in numerous ecological problems and conflicts, as well as in the reduction of the quality of living. The main conflicts because of that are between industry and tourism, industry and housing, and waste water discharge and tourism.

1.4. Quantity and Quality of Waste Water and Sources of the Sea Pollution

The quantity of the urban and industrial waste waters of the whole area has been estimated at 49,000,000 m^3/y (Margeta and Barić, 1996). About 60% of that quantity is discharged into the eastern part of the Kaštela Bay, while the remaining part is discharged into the Brač and Split Channels. The Kaštela Bay has been used as a recipient of the urban and industrial waste water since the late sixties when the town of Split expanded onto the Bay's watershed. Apart from direct and indirect discharges of the waste waters, the sea receives large quantities of wastes from various diffuse sources: (i) deposits from the atmosphere; (ii) runoff from urban areas; (iii) runoff from agricultural areas; (iv) runoff from the watershed area; (v) rivers, as shown for the Bay in Figure 2. The yearly load of the Kaštela Bay by organic matter, expressed as BOD_5, suspended solids, and inorganic phosphorus and nitrogen is shown in Table 2 (Barić *et al*., 1996).

As shown in Table 2, the largest portion of organic matter is discharged with domestic and industrial waste waters, while the largest portion of suspended solids arrives with storm waters and from the atmosphere. However, the highest contribution of inorganic nitrogen and phosphorus is from domestic waste water and rivers.

Figure 2: General hydrological scheme of the Kaštela Bay

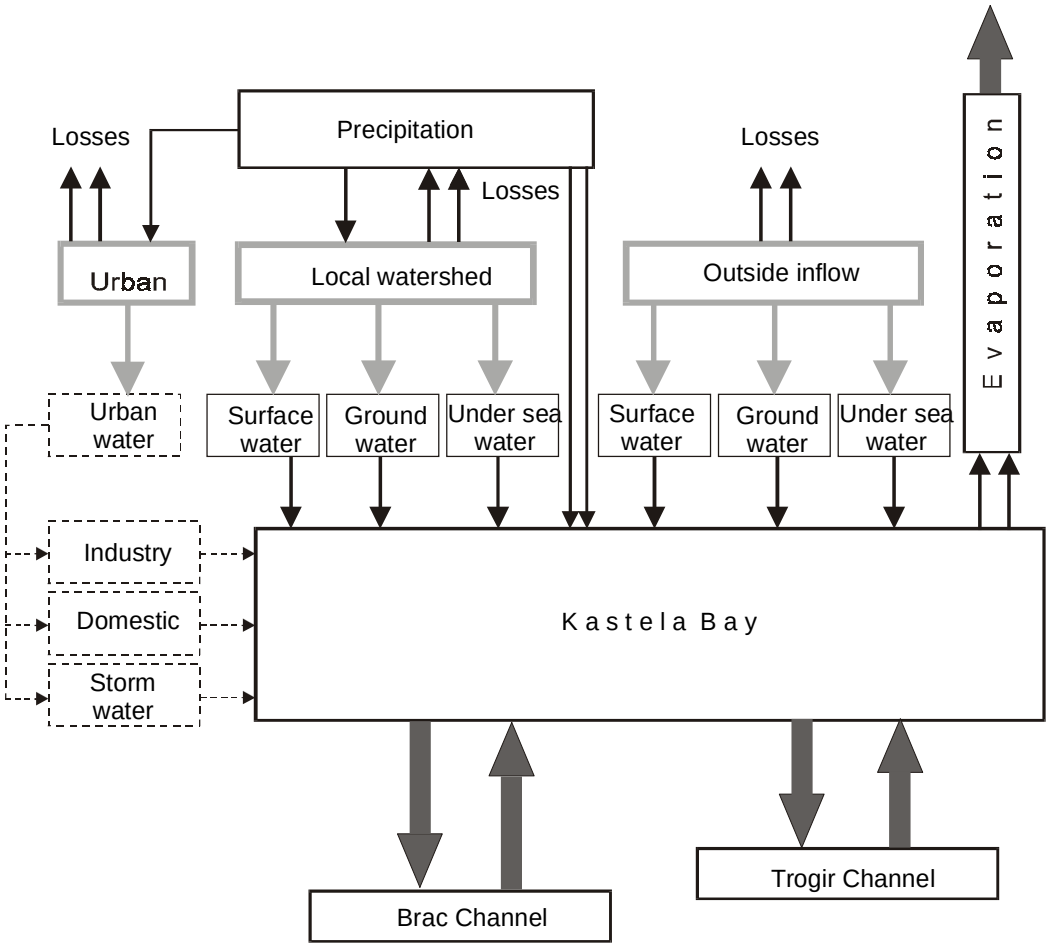


Table 2: Estimated load of the Kaštela Bay from different sources (Barić, *et al.*, 1996)

SOURCE	**BOD_5 (t/y)**	**SUSPENDED SOLIDS (t/y)**	**$P_{inorganic}$ (t/y)**	**$N_{inorganic}$ (t/y)**
Domestic waste water	2,226	2,431	14.1	64.8
Industrial waste water	1,562	954	3.1	14.4
Storm water	984	4,920	-	-
Air deposit	-	-	1.2	9.6
Underground water	205	89	-	-
Surface runoff	27	87	6.1	16.0
Rivers	388	1,419	6.5	55.2
TOTAL	**5,392**	**9,900**	**31.0**	**160.0**

1.5. Characteristics of the Sea

Two distinctive water bodies encompass the area of concern: the semi-enclosed Kaštela Bay and the Brač and Split Channels. Despite their interconnection, they represent different sea basins in terms of ecological characteristics and impacts from land-based sources.

The **Kaštela Bay** is the largest bay of the central coastal area of Croatia. The total area of the Bay is 61 km^2 and the average depth is 23 m, resulting in a total volume of 1.4 km^3. The Bay displays different bathymetric and morphometric properties, and two separate parts can be clearly distinguished: the deeper eastern and the shallower western ones. The Bay exchanges the water masses with the adjacent Brač Channel through the entrance between the Marjan peninsula and the island of Čiovo. The water renewal period of the entire Bay is about one month, while of its eastern part it is about 15 days. Vertical temperature distribution indicates the presence of a thermocline in the water column from April to October at a depth of 10-25 m. The annual mean salinity values in the surface and bottom layers are 34.43‰ and 37.27‰, respectively.

Based on the primary production, the Kaštela Bay is naturally a moderately productive basin. In the summer of 1980 the first "red tide", i. e. an extreme bloom of the dinoflagellate species, *Gonyaulax polyedra*, occurred in the Bay causing mass mortality of marine organisms in the eastern part due to reduced oxygen concentration in the water column. In the past years the "red tide" has become quite common, not only in the eastern part, but also practically throughout the Bay. This phenomenon is a consequence of domestic waste water discharge in the eastern part of the Bay. Eutrophication in the Kaštela Bay is significant (Barić et al. 1992). The concentration of dissolved oxygen has increased in the euphotic layer and decreased in the bottom layer. Long-term transparency monitoring confirms the increase of eutrophication in the Bay with strong negative impacts on the ecosystem. The Bay is contaminated by heavy metals, particularly mercury. However, the harvesting of shellfish from the Bay has been prohibited due to microbial contamination. Concentration of faecal indicators in the surface layer is higher than the permissible limits for bathing and recreational waters over almost the entire Bay (Krstulović and Šolić, 1991). As the consequence, the most attractive beaches of the area are not safe for recreational use, resulting in great losses for tourism.

The **Brač Channel** is narrowest (5 km) along the central part of the island of Brač, and widest at the western end (13 km). The greatest depth of 78 m is in the south-eastern part and 68 in the western part of the channel. The volumes of water masses of the Brač and Split Channels are 16 and 12 km^3, respectively. The average time of water mass renewal has been estimated at 2.25 months (Margeta and Barić 1996). The hydrologic system of the Brač and Split Channels is complex and variable. The area of the Brač and Split Channels is relatively abundant in fresh water. Estimated average yearly fresh water inflow is 2,510.78 million m^3. The largest source of fresh water is the Cetina river. Salinity ranges from 37‰ to 38‰. The temperature varies depending on the season, and ranges from 10 to 16.5°C at the bottom, and from 10 to 25°C at the surface. In the period from April to October a thermocline is formed at the depth of 10 to 20 m below a well mixed surface layer. The sea transparency ranges from 12 to 23 m. Concentrations of ammonia (annual ranges 0.14-3.10 $mmol/m^3$), nitrates (annual ranges 0.00-1.80 $mmol/m^3$), ortho-phosphates (annual ranges 0.000-0.156 $mmol/m^3$) and ortho-silicate (0.14-6.88 mol/m^3) in the Brač Channel are relatively low and show uniform distribution considering both the depth and the year seasons, indicating the olygotrophic condition

of the channels in terms of nutrient concentrations (Barić et al., 1998). Oxygen saturation varies seasonally in a narrow range: 95-110 % and 85-100 % in the surface and bottom layers, respectively (Barić *et al.*, 1998). A long-term study of the phytoplankton in the Channels shows that the phytoplankton community is rather undisturbed without any sign of eutrophication. Microbial pollution is only recorded in the coastal area in the vicinity of the town of Split.

2. CAMP and Associated Projects – Approaches Applied

Increased pressure of the affected population with initiatives of the scientific community, as well as various sectorial initiatives of the local authorities, requesting for a comprehensive remedial programme. The following were the major initiatives:

2.1. The 3rd Conference on the Protection of the Adriatic Sea

The 3rd Conference on the Protection of the Adriatic Sea, held in 1984, within its Declaration on the Protection of the Adriatic Sea, recommended, *inter alia*, the formulation and implementation of an environmental programme for the Kaštela Bay area.

2.2. The PAP/RAC Pilot Project on the Kaštela Bay Area (1987-1989)

The proposal for the formulation and implementation of the pilot project, within PAP action on Integrated Planning and Management of Coastal Zone, was submitted to the 1986 Meeting of the National Focal Points for PAP. After positive evaluation by the Meeting, MAP approved the proposal. Approvals for its implementation were also provided by the relevant national authorities. The implementation of the project started in 1987 and was completed in 1989, as part of the PAP Country Pilot Projects.

The project was implemented in co-operation with the University of Split, the Institute for Oceanography and Fisheries in Split, and with the Blue Plan/MAP and MEDPOL/MAP. The basic objective of the project was to assist national and local authorities in the process of mitigation and reduction of pollution in the project area, and rational use of its resources. The immediate objectives were:

- the completion of the knowledge on: (i) the status of the environment in the bay area; (ii) causes of the deterioration, and (iii) major impacts and their significance;
- introduction of the concept of integrated management, by applying the methodology of Integrated Coastal and Marine Areas Management, and introducing its most relevant tools; and
- implementation of a number of studies related to selected most significant environmental and development problems.

After the start of the national project on Environmental Management of the Kaštela Bay, presented below, the two projects were harmonised, and the results of the PAP Project gradually introduced into and used by the National Project. The main individual activities implemented by the pilot project were related to:

- assessment of land-based sources of pollution in the area;
- target monitoring of the pollution of the Bay;
- study of natural characteristics of the Bay;
- criteria for discharge of waste water in the Bay;
- environment/development scenario;
- study of the red tide phenomena in the Bay;
- study on the mercury contents in marine environment and sea bottom;
- study on the development of aquaculture in the project area;
- study on the impact of wind on transport of sea masses in the Bay;
- preparation of Environmental Impact Assessment (EIA) for a submarine outfall; and
- training on and application of Geographic Information Systems (GIS).

Among the major results of the project, the following might be emphasised:

- experience achieved in formulation and implementation of an integrated project related to environment/development interrelations in an area highly affected by uncontrolled development;
- involvement of local and national institutions and authorities in the project;
- involvement of a large number of local and national experts;
- data and information collected, and knowledge achieved on a number of critical issues; and

- environment/development prospective elaborated.

After the decision of MAP to establish the MAP Coastal Area Management Programme (MAP CAMP), the pilot project has been closed in 1989, to be reformulated and continued immediately within the MAP CAMP.

In parallel with MAP CAMP Kaštela Bay project, two other projects were lunched: (i) The OECD Study (1989-1990) and (ii) National project "Environmental Management of the Kaštela Bay" (1989-1992). The OECD Study implemented the study on "Integrated Environmental Management of the Kaštela Bay". The study was prepared by the University of Split, under the guidance of OECD staff and with the assistance of PAP/RAC. The study analysed: (i) the natural systems and socio-economic conditions of the area; (ii) causes and consequences of pollution and environmental degradation; (iii) the demand for products and services from the project area.

Furthermore, the study presented the relevant legal and institutional framework related to: (i) pollution mitigation and control; (ii) land-use and urban planning; and (iii) the socio-economic planning and development. In its conclusive part, the study emphasised the need for the application of and integrated approach to planning and development activities. Finally, the study called for an economic restructuring, by applying clean technologies and introducing new economic activities, mainly the tertiary ones. The results of the study were used as input in the subsequent national project and the MAP CAMP "Kaštela Bay" project.

2.3. National Project "Environmental Management of the Kaštela Bay"(1989-1992)

The most comprehensive study was National project "Environmental Management of the Kaštela Bay". The project proposal was prepared by the Faculty of Civil Engineering, University of Split, and PAP/RAC. After the approval of the project by the local and national authorities, the financial support was secured from the EC in 1987 and from the WB in 1988. The implementation of the project started in 1989. The project was implemented by the University of Split in co-operation with the Croatian Academy of Arts and Sciences in Zagreb. PAP/RAC assisted the implementation of the project by: (i) providing relevant results of the PAP pilot project and of the MAP CAMP project, started in 1989 and described below; (ii) establishing contacts with UN agencies and other international institutions; (iii) presenting experience on application of integration, ICAM and relevant tools and techniques; and (iv) a modest financial support.

The general objectives of the project were, by application of scientific methods, to: (i) identify the causes of the present situation and trends; (ii) assess their impacts and significance; and (iii) development alternatives for sustainable development. Specific project objectives were as follows:

- to define the sensitivity, vulnerability and (limited) carrying capacity of the natural resources;
- to introduce standard procedures and parameters in the process of management of natural resources; and
- to apply, within the project scientific framework, an integrated approach and principles of sustainable development.

The project was structured in three basic components: (i) Models and Modelling; (ii) Environment and Ecosystem; (iii) Socio-Economic-Spatial Systems; resulting in an integrated Synthesis. The major results of the individual project components were as follows:

Methods and Modelling: This sub-project was conceived and implemented so as to support the other two sub-projects. Methods were defined, related to the database, environment/development scenario, land-use (spatial) management, and valorisation of ecosystems by multicriterial analysis. A number of Decision Support Systems, of a sectorial or issue of specific nature were designed and applied.

Environment and Ecosystems: This sub-project was implemented through research modules related to soil, land, air, freshwater, and marine ecosystems. Each module was elaborated in detail, and the sectorial results integrated within the scenarios and development alternatives.

Socio-Economic-Spatial System: The sub-project focused on the state, dynamics and trends of development within the given environmental framework, elaborated by the second Sub-project. A simulation model was developed and applied. Furthermore, applying the participatory principle, a survey on social and development aspirations was carried out among citizens, the results systematised, analysed and used. Finally, interrelations among the economic potential and the environmental capacity were studied.

The results of the first research cycle of the project were presented together with results of the MAP CAMP project in 1994. Unfortunately, despite a positive evaluation made by MAP/UNEP, by the relevant national

and local authorities, and by the scientific community, due to the war and impossibility to obtain further international financial support, the second cycle of the project could not be formulated or implemented.

2.4. The MAP CAMP "Kaštela Bay" Project (1989-1993)

In 1989, MAP approved the start of the MAP Coastal Area Management Programme (MAP CAMP) as one of four projects to be implemented in the first cycle the "Kaštela Bay" project. The structure of the project was based on the results and structures of the preceding PAP Pilot Project, respecting the needed continuity of activities, including additional activities and envisaging in-depth studies of some critical issues. This project was implemented by PAP/RAC, MEDPOL, and the BP/RAC, in co-operation with the Institute for Oceanography and Fisheries in Split, and the Faculty of Civil Engineering of the University of Split.

The objectives of this CAMP project were defined on the basis of the general objectives of the MAP CAMP, bearing in mind, at the same time, the features of the Kaštela Bay and the national project. Due to the almost parallel start of the national project presented above, the contents and activities of the two projects were harmonised and synchronised, allowing the use of the results of the MAP CAMP project by the national project and *vice versa*, so results of the projects were combined in a unique one. Consequently, immediate objectives of the project were:

(i) completion of knowledge on ecosystems, sources of non-compliance and relevant impacts;
(ii) implementation of studies needed to define priorities, remedial measures and projects to be envisaged by such remedial programme; and
(iii) elaboration of some basic technical solutions.

Within the MAP CAMP project, the following major activities were implemented:

- preparation of a cadastre of pollution;
- programme of targeted monitoring of the Bay;
- study of oceanographic characteristics of the Brač and Split Channels;
- study of the optimum level of treatment of urban waste waters to be discharged into the Bay and the channels;
- EIA of the Split-Stobreč submarine outfall;
- study on the impact of the climate change on coastal infrastructure;
- studies on fresh water resources of the western part of the Bay, and on the water supply for the islands of Drvenik Veli and Drvenik Mali;
- study of future solid waste disposal system;
- study on the rehabilitation of the Pantana area, an area of high environmental and cultural values;
- study on the pollution of agricultural soils in the project area;
- prospective study (environment-development scenario) for the area; and
- application of GIS for urban and land-use planning.

In the programme preparation and implementation, the following was applied:

- general methodological approach of the MAP CAMP adapted to the specific features of this project and to the need to co-operate with National project;
- the specific method and approaches used in the implementation of other UNEP MAP activities, particularly:
    - methodology of the preparation of systematic prospective study adapted to the specific conditions of the project (Blue Plan);
    - methodology of EIA;
    - scientific basis and programme of MEDPOL;
    - methodological approach to Integrate Coastal Area Management (ICAM);
    - UNEP-MAP approach to assessment of the impact of the expected climate changes;
    - for implementation of GIS activities: pcARC/INFO; and
    - scientific methods and models applied to in various activities of the project.

It is worth mentioning that concept and programme of activities, although formulated much earlier, harmonised with Agenda 21. The major results of the project were related to:

- completion of data and information, and knowledge gained on major issues crucial for the formulation of a large remedial programme;
- technical solutions elaborated, related to the infrastructure, and remedial actions;

- basic information on the impacts of the expected climate change, indispensable in particular for the design of coastal infrastructure; and
- basic policy orientation elaborated by the prepared environmental development scenario.

The project results were presented jointly with the results of the national project, as described above. The major benefit form the MAP CAMP project was related to the use of its technical solutions as input for the subsequent design of infrastructure, implemented within the support of the WB METAP.

3. Resulting Concepts and Strategies

3.1. Resulting Concepts

The studies and projects implemented in the 1986-93 period, in addition to their individual achievement, resulted in a well-funded understanding of concepts and strategies to be applied:

- the causes of deterioration of the socio-economic context and the state of the environment, the resulting impacts and their significance indicated the need for the adoption and gradual implementation of a comprehensive, long-term, multi-phase remedial and sustainable development programme, to be formulated according to the priorities and existing conditions for its implementation;
- the strategy of the programme to be based on an active development concept combined with appropriate remedial actions;
- the socio-economic studies and the environment/development scenario prepared indicated the need for a radical change in the hitherto development concept, implying change of strategy of national and coastal economy due to the new political context within the independent Republic of Croatia, and structural changes during the transition period, applying an integrated approach to coastal development, oriented towards Europe, the Mediterranean region and the world, based on market economy and principles of sustainable development;
- the conceptual approach to the programme should be based on the principles of (i) sustainable development, (ii) integrated coastal and marine areas management, and (iii) market economy; and
- as urgent priorities to be included in the long-term programme, the following activities were identified:
    - design and construction of the urban waste water collection, treatment and disposal system, according to the technical solution elaborated by the MAP CAMP project;
    - establishment of a sustainable system for solid waste management, including a new sanitary landfill;
    - recovery of the city port: prevent further discharge of waste water, monitoring and recovery of the port aquatorium, installation of port reception facilities, exploitation of port development potentials;
    - protection from pollution of the river Jadro, the major source of potable water for the area, by establishing an adequate development policy and monitoring over its entire catchment area;
    - monitoring, control and reduction of industrial pollution, generated in particular by the chemical, cement and metal industries;
    - upgrading of the water supply system in the western (predominantly tourist area) part of the area;
    - rehabilitation and protection of the rich historic and cultural heritage, in particular of the Roman emperor Diocletian's palace and the Roman town of Salona, and their sustainable use (tourism, cultural and research activities); and
    - establishment and implementation of a continuos programme of scientifically based monitoring and research, oriented to sustainable development of the area and updating of the relevant knowledge and information.

3.2. Strategic Approach to the Protection of the Kaštela Bay and Brač and Split Channels Against Pollution from Land-based Sources and Activities

The protection of the coastal sea is one of the most important prerequisites of the sustainable development of the area, recognised by studies and by the local community. It includes integrated land-use management (soil, fresh waters, sea and air). As mentioned above, the main sources of the sea pollution are waste waters. Therefore, the priority is given to the management of all kinds of waste waters. In order to achieve the long-

term protection of the Kaštela Bay and the Brač and Split Channels from urban and industrial waste waters, the following strategic approach was applied:

- The Kaštela Bay is considered as an ecologically sensitive and socio-economically important area, and for its protection it is necessary to:
  - eliminate from the Bay all outlets and outfalls discharging untreated and/or partially treated municipal waste water, as well as the leakage from permeable septic tanks;
  - eliminate from the Bay all outlets discharging untreated and/or partially treated industrial waste water; and
  - establish a permanent monitoring programme of the coastal water.
- The Brač and Split Channels, considered as less ecologically sensitive areas, are selected as the recipient of all urban and industrial waste waters of the area. The selection was done taking into account their relatively high volume and depth, intensive dynamics of water masses, and the present biological and ecological conditions which have not, so far, been affected by the waste water discharge.

The waste water discharge should be done under the following general and specific conditions:

General conditions:

- Construction of appropriate municipal sewer system(s) for the collection, treatment and disposal of the entire amount of urban and industrial waste waters of the region.
- Waste water disposal via long submarine outfalls ensuring appropriate initial and secondary dilution, and sanitary protection of a 300 m wide coastal sea belt.
- Use of the natural capacities of the marine environment for wastes treatment, and application of a minimum level of urban waste water treatment. The final level of waste treatment should be determined on the basis of monitoring results. The applied level of waste treatment should ensure the avoidance of negative impacts.
- Pre-treatment of industrial waste waters prior to their discharge into the municipal sewer system(s) in order to remove substances that can be detrimental to:
  - the operation of a biological treatment plant;
  - the usage of the sludge produced at the treatment plant;
  - marine ecosystems.
- Elimination of all existing uncontrolled coastal outlets in the area.

Specific conditions:

- Studies for the siting and design of the submarine outfalls;
- Design and construction of sewerage systems;
- Efficient management and maintenance of sewerage systems;
- Public participation;
- Monitoring and information;
- Computer-based Decision Support System for Coastal Water Resources Management.

The following long-term targets should be achieved by the fulfilment of the above-listed conditions:

- **Sanitary quality of the coastal sea:** The coastal sea belt, 300 m wide in the entire area, should be sanitary clean and safe for bathing and recreation in all weather conditions. It means that in many locations in the coastal area the sanitary quality of the sea should be improved.
- **Aesthetic value of the sea water:** The aesthetic value of the sea water in the coastal belt should be unaffected by the discharged waste waters, which implies the improving of water quality in most locations, which are presently under the impact of small outlets. Only a slight increase of turbidity may be expected in a wider zone of the channels nearby the diffuser(s) location.
- **Benthic communities:** Damaged benthic communities in the coastal region should be recovered, particularly in the entire Kaštela Bay, but communities in the vicinities of submarine diffusers will be completely destroyed.
- **Eutrophication:** The discharge of urban waste would increase the eutrophication in the Channels, resulting in the increase of primary productivity and phytoplankton biomass, and slight changes in the structure of phytoplankton community, but the “red tide”, oxygen depletion in the bottom layer (except in the vicinity of diffuser) and other accompanying phenomena should be avoided. At the same time, a gradual improvement is expected in the Bay.

4. Implementation

4.1. The Integrated Infrastructure Project

Already the initial results of the CAMP "Kaštela Bay" and other relevant projects confirmed the need to build the basic urban infrastructure necessary for a sustainable development of the wider area of the Kaštela Bay. Accordingly, in the year 1989, a number of local institutions, headed by the Faculty of Civil Engineering of the University of Split and in co-operation with the Enterprise of Construction of Split proposed a programme of construction of urban infrastructure entitled "**Integrated Ecological Project Split-Solin-Kaštela-Trogir: Infrastructure Programme**". Through the construction of urban infrastructure, the following objectives were planned to be achieved: (i) clean sea, (ii) clean air, (iii) healthy drinking water, and (iv) land free of all kinds of waste. A programme of implementation of the project was agreed with representatives of the World Bank within the WB METAP – Kaštela Bay.

The infrastructure construction programme referred to:

- waste waters, both urban and industrial;
- solid waste, both urban and industrial;
- bilge; and
- waste oils.

It was expected that these problems would be resolved in a period of 5-8 years, starting from 1990. Also, it was expected that the implementation of the project would contribute to considerable reduction of sea pollution. The initial phase envisaged the preparation of programmes at the level of feasibility studies for the following projects:

- sewerage systems for the towns of Split, Solin, Kaštela and Trogir;
- collection, treatment and disposal of urban and industrial solid wastes of the towns of Split, Solin, Kaštela, Trogir, Omiš and Sinj;
- water supply for the towns of Split, Solin, Kaštela and Trogir;
- protection of the water resources of the watersheds of the Kaštela Bay, Brač Channel and river Cetina;
- air pollution of the towns of Split, Solin, Kaštela and Trogir;
- traffic and traffic lines of the towns of Split, Solin, Kaštela, Trogir and Omiš; and
- architectural heritage of the towns of Split, Solin, Kaštela and Trogir.

A detailed programme was prepared for each of the projects, containing: goals and objectives, activities and their contents, implementation phases, expected results, analysis of the degree of completion of the project, implementation dynamics, costs of preparation, investment and exploitation, and proposal of financial sources.

The funds necessary for the implementation of the projects were thoroughly analysed and assessed, as well as the possible sources of financing. It was proposed that the projects be financed from several sources: local funds, local urban services, the state, donations and bank loans, and primarily the World Bank. The analysis also included the ways how the loans would be paid off and how the funds would be secured for the operation and maintenance of the built systems. Those primarily referred to the price of services (water, sewerage, waste), and urban rent.

Within the elaboration of the infrastructure construction programme, an analysis was made of the necessary organisational arrangement to implement such a comprehensive programme in an area covering several administrative units. Concentration of almost all urban problems in one integrated project requires a suitable organisational model for the project implementation. Accordingly, two models were proposed: one was based on the existing institutions, and envisaging the establishment of a new institution. The second alternative was eventually adopted, and it was proposed that a special centre be established for the implementation of the Integrated Ecological Project. The proposed programme and projects were verified at all levels, the rights and liabilities of all involved parties were agreed upon, and the programme implementation was launched in 1989. Funds were secured for the preparation of studies and projects, mostly from the local sources, but there was also a considerable amount donated by the World Bank through the METAP – Kaštela Bay.

In the period 1989-1990, most of the studies and projects were prepared and the prerequisites were provided for the construction of the planned infrastructure. In October 1990, a World Bank mission was organised to

the area, headed by Mr. Richard McEwan. During their visit, tentative costs of each project were agreed upon, as well as the possible total amount of the loan (US$ 108 million). The mission also defined a programme of further activities necessary to realise the loan and the project as a whole, and especially the preliminary actions to be performed, and conditions to be met by the local urban services and the towns, i.e. the beneficiaries of the loan. Unfortunately, the hostilities that broke out in 1991 and lasted until 1993, interrupted the collaboration with the World Bank on the implementation of this project. However, the programme of preparatory activities for the implementation of the project went on as planned, throughout the hostilities, although with a certain delay. In that period, the entire project documentation was completed and most of the preparatory administrative measures necessary for the project implementation were taken (changes of town plans, obtaining permits, etc.). In that period, a new institution, "ECO-Kaštela Bay", was established with the objective to implement the Integrated Ecological Project – Infrastructure Programme.

4.2. Follow up

In the year 1994, contacts were renewed with the World Bank, Washington, and in collaboration with them, with the European Bank for Reconstruction and Development, London. In the period 1996-1997, loans were agreed for two projects:

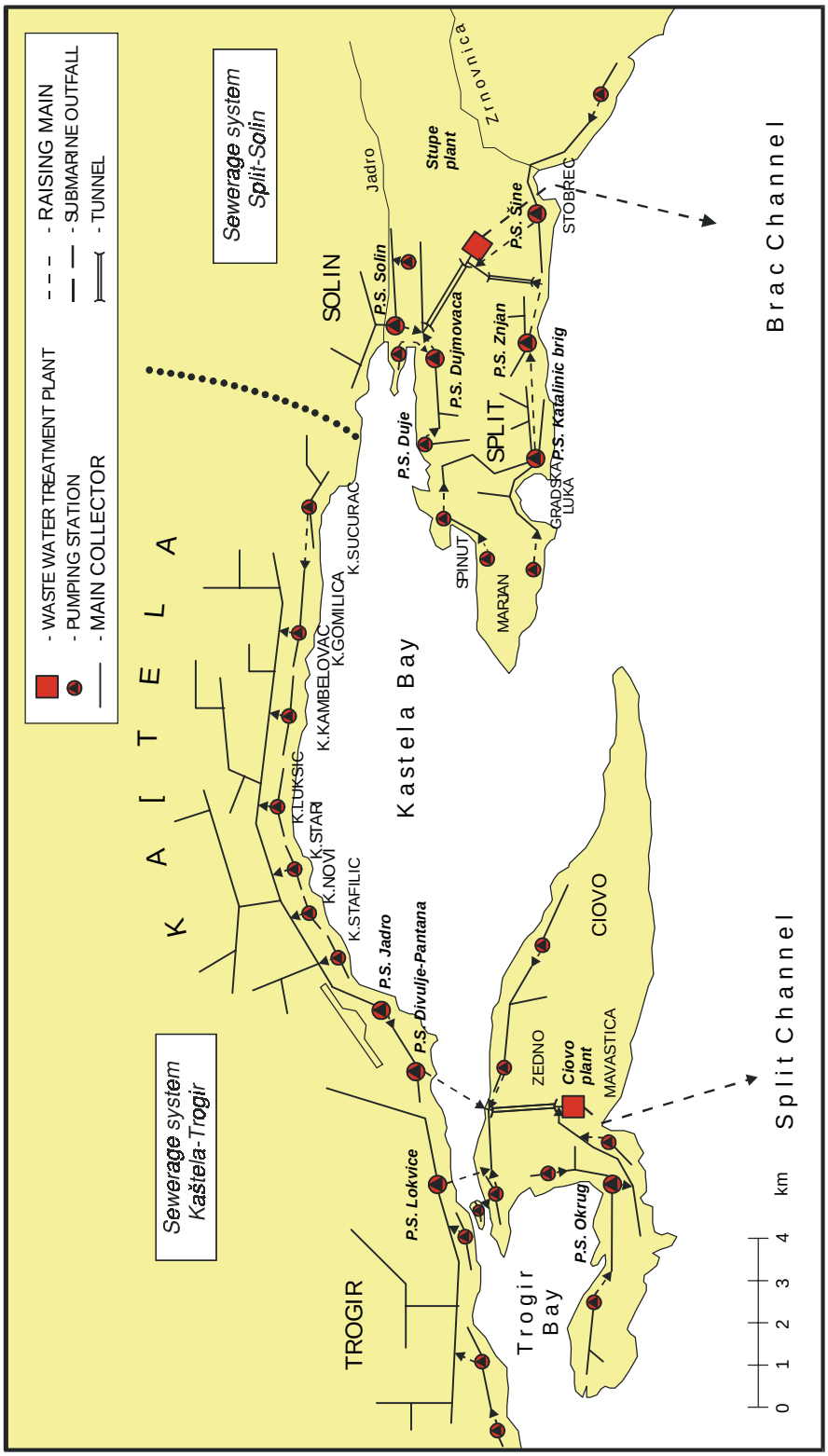
- Project No. 1: Sewerage systems Split/Solin and Kaštela/Trogir (Figure 3); and
- Project No. 2: Water supply system.

Tentative agreement was reached on the implementation of other projects in the future. The long-term solution of the sewerage system, developed on the basis of a detailed analysis of ecological, technical and economic parameters (in CAMP and other related studies), envisages the construction of two separate sewerage systems, one for the Split-Solin area (Margeta, 1990) and a separate one for the Kaštela-Trogir area (Margeta, 1992) (Figure 3). Each system is of a separate sewerage type, consisting of a sewerage network, collectors and pump stations, a central waste water treatment plant, and a corresponding submarine outfall. The Split and Solin waste waters would be treated at the central plant of "Stupe" and discharged into the Brač Channel in front of the town of Stobreč. Waste waters of the Kaštela and Trogir area would be collected and treated at the treatment plant located in the central-southern part of the island of Čiovo and discharged into the Split Channel in the front of the village of Mavarščica. The development of each sewerage system has been planned so as to be executed in several phases. The first phase of both systems consists of the construction of a primary waste treatment plant and main collectors together with accompanying pump stations. The second and further phases envisage the construction of secondary sewers and connectors, and, if necessary, based on the results of the monitoring programme, the secondary or higher-level waste water treatment. The gradual approach to implementation would enable optimal sea protection considering the negative impacts and economic potential of the region. The planned step-by-step construction of the waste water treatment plant and the submarine outfall enable a simple adaptation to future needs and requirements in order to comply with the increase of waste water quantity, as well as sustainable development criteria.

The first project envisages the construction of the 1st phase of the two sewerage systems, which includes the sewerage network approximately 60 km long, 7 large and 11 smaller pumping stations, two hydro-technical tunnels long 2.4 km and 1.8 km respectively, two treatment plants and the belonging long submarine outfalls, as well a the appropriate management system. The second project envisages additions to and spreading of the existing water supply system, which includes the construction of a central pumping station, four smaller regional pumping stations, 17.5 km of water supply pipelines, and four reservoirs of various capacities, as well as an appropriate management system. The total cost of the investment was estimated at US$ 130 million.

According to the conditions posed by the banks, a procedure was launched to select the author of the project and tender documentation. The international competition was closed in 1998, and the preparation of the project and tender documentation for both projects was contracted, and is currently in course. The selection was also made of potential contractors for various works. The construction started in autumn 1999.

Figure 3: Concept of a long-term solution of the sewerage system in the Kaštela Bay area



The only problem encountered so far in the implementation of the Kaštela/Trogir sewerage system regards a delay in the preparation of the project documentation due to local problems relative to the location of the treatment plant. At present, alternative solutions of this sewerage system are being studied. The other projects are being implemented according to the plan. Alongside these projects, another one is being implemented. It is the project of collection, treatment and disposal of solid waste. The project is implemented outside the “ECO-Kaštela Bay” agency and is under direct control of the town of Split and its institutions. The optimum, temporary solution for the solid waste treatment and disposal has been selected, and the

implementation of this project is in course. At the same time, works are continued on a long-term solution for the wider region.

At present, negotiations are in course with the World Bank on the activation of other, earlier agreed project. This primarily refers to the revitalisation project for the Diocletian's Palace in Split, which is at the UNESCO's list. The first phase of the Palace revitalisation is completed, and all works were financed by the town of Split.

Traffic problems are also being gradually revolved within the institutions of the Republic of Croatia. The problems of air pollution are also tackled through the process of industrial restructuring and privatisation. This problem, owing to the consequences of war and decreased industrial activity, isn't so pronounced any more.

A part of the activities aimed at the revitalisation of the town harbour have also been implemented. A sewerage ring around the harbour has been constructed so that the waste waters are no longer discharged into the harbour, but are being pumped into the submarine outfall in the Brač Channel.

4.3. Agency "ECO-Kaštela Bay"

The implementation of the Integrated Ecological Project was entrusted to the "ECO-Kaštela Bay" agency located in Split. The founders of the agency are the towns/municipalities in the area to be covered by the infrastructure project, namely Split, Solin, Kaštela and Trogir, as well as the Government of Croatia through the relevant ministries/institutions. The main task of the Agency is, on behalf of its founders, to prepare and implement the agreed projects of common interest. The Agency represents its founders in front of investors and banks, and implements the project according to the conditions posed by the creditors and the founders.

In order to implement the mentioned adopted conceptual solution for the management of waste waters in the area, a project under the title "ECO-Kaštela Bay" has been developed. The project envisages the construction of the main elements of the sewerage systems in order to divert the waste water from the Kaštela Bay into the Brač and Split Channels. In the western part of the area, the system includes a main collector with accompanying pumps along the northern coast of the Kaštela Bay, a treatment plant, a tunnel through the Čiovo island, and a submarine outfall in the Split Channel. In the eastern part of the area (towns of Solin and Split), the system consists of a main collector with accompanying pumps in the eastern part of the Kaštela Bay, a hydrotechnical tunnel, a treatment plant, and a submarine outfall in the Brač Channel. The realisation of the sewerage systems would be the first step towards the protection of the Kaštela Bay.

These selected structures ensure that each sewerage system can function as a separate and complete technological system which ensures environmental protection and high standards for the users of these systems. This system also ensures the use of the coastal sea in accordance with the legislation and development plans.

The project has a number of components, each of which will produce some favourable environmental effects. Those are:

- Waste water treatment plant of "Stupe" and the belonging submarine outfall: It is certain that this will be the component to have the greatest merit in preventing further pollution of the Kaštela Bay, as well as in eliminating the pollution of the coastal strip of the town of Split. All the waste water of the towns of Split and Solin, hitherto discharged into the Kaštela Bay, will now be treated and discharged into the Brač Channel through a long submarine outfall.
- Split-Solin sewerage system extension and improvements: The work on the extension and improvement of the Split-Solin sewerage system will include the interception of all waste waters now discharged into the Kaštela Bay from this area, and their collection in the "Stupe" waste water treatment plant, which will prevent further pollution of the Bay. Also, the waste waters from the port of Split, hitherto discharged locally into the Brač Channel, will be intercepted and collected at the "Stupe" plant.
- Waste water treatment plant "Čiovo-Divulje" and the belonging submarine outfall: This component will contribute greatly to the prevention of further local pollution of the Kaštela Bay from the Kaštela area, as well as of the Trogir Bay from the Trogir area. All the waste waters of the towns of Kaštela and Trogir, hitherto discharged into the Kaštela and Trogir Bays, will now be treated and discharged into the Split Channel through a long submarine outfall.
- Kaštela-Trogir sewerage system extension and improvements: The work on the extension and improvement of the Kaštela-Trogir sewerage system will include the interception of all waste waters

now discharged into the Kaštela Bay and Trogir Bay from these areas, and their collection at the "Čiovo-Divulje" waste water treatment plant, which will prevent further pollution of the Bays.

In addition to the waste water management, the project contains another component dealing with the freshwater supply of the western part of the area. It plays a double role. Besides the improvement of freshwater supply in the western part of the area, lacking fresh water, particularly in the summer season, it will enable further economic activity, as well as increase the water consumption, ensuring the necessary funds for the pay back of international loans. Namely, the pay back money is generated from the 25% higher price of tap water.

5. Lessons Learned

Among the specific results of the project, it should be mentioned that the project implementation and its results confirmed in practice the need for and benefits from the application of a scientific approach, application of the methodology and tools of integrated coastal management, and of the principles of sustainable development, when dealing with complex environment/development problems, in this case of the Kaštela Bay area. The project widely contributed to the rising of awareness of the general public and authorities regarding the state of the environment and the need for sustainable development.

The good results of this project with regard to the sea protection against waste waters were possible to achieve owing to the fact that along with the preparation of this project, the preparation was in course of a feasibility study of the waste water systems of Split, Solin, Kaštela and Trogir (Faculty of Civil Engineering). This situation enabled that the studies prepared within the CAMP project have/use good and reliable information regarding the goals and needs of the sewerage system development in accordance with technical and legal requirements/constrains. In that way, all CAMP studies were directly usable for the designer of the sewerage system feasibility studies, or better said, they are part of the feasibility study of the sewerage system. This symbiosis of projects turned out to be very useful which resulted in a good quality solution of the sewerage systems. Namely, the WB experts have fully accepted the proposed solutions which, in turn, resulted in a fast approval of funds to finance these sewerage systems by the WB, and the construction is presently in course.

The most important factor which contributed to the success of the CAMP project was the fact that the project was guided and formulated according to the engineering requirements for the solution of the identified problems of solid and liquid wastes disposal. The requirements were defined by engineers, while the scientists involved in the CAMP project collaborated with the engineers when searching solutions for important issues and topics, which contributed to the high quality of the solutions which were scientifically elaborated and defined, and applicable from the engineering point of view.

The down side of the CAMP "Kaštela Bay" was a large number of various activities which did not represent a whole, nor did they produce a single result-product. Perhaps, it is a peculiarity of the CAMP "Kaštela Bay", since the activities of this project covered the gaps in the engineering projects implemented simultaneously contributing thus greatly to the success of those parallel projects. Therefore, the CAMP as a whole does not have a single comprehensive result, but rather a series of results from a number of various fields. Unfortunately, such work did not enable all the participants to understand the final objectives of the project, so the activities and results remained somewhat unharmonised.

6. Suggestions for CAMP Formulations

A CAMP project should be planned carefully by a top-down and down-top procedure. Goals and objectives have to be planned by to-down procedure while activities necessary to accomplish these goals and objectives by down-top procedures. It is not good that a CAMP represents a set of individual and unharmonised desires of the host country in accordance with local interests. It is not good that CAMP tackles a large number of various problems which do not make logical whole, either territorially or functionally. The role of CAMP must not be generic, such as capacity building, data collection, GIS application, and similar. In order for a CAMP project to have a good and useful result it is important to know what will be the one comprehensive final project result, while capacity building, GIS application and the like, are just accompanying activities and not the final and most important goals of the project. They are in reality useless, if not strictly linked with the final result of the project.

With regard to the planned result/product of the project it is necessary to plan the required activities that make part of a whole that will lead to the achievement of the set goals. Most important of all is that the goal/product is understandable, measurable and easily recognisable so that all the participants in the various activities can know from the outset what will be the final and most important result of their work.

In order to achieve good results, these five most important prerequisites have to be met:

- A group of local and international experts has to formulate the overall project as a coherent whole and product. At that some activities may be implemented both within the project and outside it, while some have been completed with CAMP using their results. The final result is a product provided by the CAMP regardless of who and where implemented the activities that led to it.
- One local and one international expert with good references in the relevant discipline, who also made part of the group which formulated the overall project, have to lead, co-ordinate and be responsible for the scientific implementation of the project. It will be mostly their responsibility that the planned goal/product is achieved in time.
- Scientific co-ordination must be strictly separated from the administrative co-ordination of the CAMP project.
- Financial means must always be adequate to the expected result. A CAMP project must not be implemented as a social project for local experts.
- The result/product of the CAMP project must be concrete, of immediate importance, and useful/applicable for the region or the local community.

Finally, I don't think that a CAMP project must always be an area development or land-use project. It would be more useful, if a CAMP Project were a problem-oriented project related to a single resource management (land, water, protected area, etc.).

7. Summary and Recommendations

Due to a number of political, historical, natural and socio-economic reasons, the area of the Kastela Bay near the city of Split in Croatia, became, in the mid eighties, one of the largest and most widely known pollution "hot spot" areas in the Mediterranean region. In less than four decades, the area turned from a pristine area of high tourist potential into an area with highly degraded natural ecosystems, particularly its coastal waters, inadequate economic structure, as well as a number of demographic and social problems. All these have prompted the relevant authorities to start the activities aimed at the improvement of the situation in the Bay.

In order to asses the actual state, its causes and possible solutions to the problems, a number of studies have been prepared, the most important of which are the CAMP "KaŠtela Bay" and the national project on natural resources management. The World Bank's METAP project was associated with the above programmes some time after initiation. Lately, as a result of the above studies and other activities, an integrated ecological project for the infrastructure development was launched. All of these projects have created a necessary basis for the most concrete action to follow. Unfortunately, due to the war in Croatia, the activities on the projects implementation were postponed for some time.

After the war, the activities on infrastructure development have been clearly indicated as the first area for the projects implementation. The Croatian Government, as well as the local governments of the Bay's surrounding municipalities have given the approval for the action to be taken with development banks. The WB and EBRD have approved large loans for the construction of sewage systems. Other actions and financing indicated in initial programme are to follow.

This programme is one of rare examples in the Mediterranean where modest initial activities (CAMP) have evolved into a concrete implementation and activity on the improvement of the environmental systems. As such, it could provide valuable information on how this approach could be replicated in Croatia and elsewhere in the region.

The CAMP "Kaštela Bay" project proved very useful for the local community in resolving the crucial problems relevant to waste disposal. Through the local and international experts its engaged, the CAMP project provided the necessary assurance and gave good directions for the activity of the national institutions and local organisations, and especially to the politicians and the local population, prompting them to start resolving the growing ecological and economic problems. From that point of view, the role of the CAMP

project was irreplaceable and immeasurable. Such role of CAMP is highly useful, so the CAMP activities should be developed with this goal in mind.

Based on the MAP and PAP experience, the following recommendations were made for the CAMP "Kaštela Bay":

- carry on with the project of sustainable management of the Kaštela Bay area and the County of Split-Dalmatia;
- consider the appropriateness of and need to formulate a wider management project that could have three parts: (i) the coastal area of Croatia, (ii) the continental part, and (iii) integration of all areas of Croatia, both coastal and continental;
- immediately start the formulation and preparation of a study on interrelations between the management mechanism and coastal area management processes;
- start the preparation of a programme of international financing based on the results and recommendations of MAP reports and the national project reports.

All these proposals are still very actual and fully in accordance with EU policy on coastal-land-watershed integrated management.

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CAMP "FUKA-MATROUH", EGYPT

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Executive Summary

This paper describes the site, the most important activities, accomplishments, lessons learned from and conclusions of the Integrated Coastal Zone Management (ICZM) of Fuka-Matrouh. The project started as a pilot study supported by the Priority Actions Programme Regional Activity Centre (PAP/RAC) of the Mediterranean Action Plan (MAP-UNEP), in collaboration with the University of Alexandria and various other universities and governmental agencies.

The main objectives of the study were:

- to ensure sustainable development of the coastal area under consideration;
- to present a pilot case study to decision makers for ICZM and Strategic Environmental Assessment (SEA) for immediate implementation; and
- to build national capacity and present an example for similar areas, which could be developed in an analogous way.

Based on consultations with various national and local stakeholders, it was decided to carry out the following sub projects successively:

- building up a Geographic Information System (GIS) based on Remote Sensing and ground-based surveys;
- carrying out a Carrying Capacity Assessment (CCA) for tourism;
- advancing an Integrated Coastal Zone Management (ICZM) Plan;
- carrying out a Strategic Environmental Assessment (SEA) of the plan; and
- enhancing the knowledge of the archaeological and historical heritage.

A multi-disciplinary team headed by Professor M. El-Raey of the Institute of Graduate Studies and Research (IGSR), University of Alexandria, was responsible for implementing the five sub projects in collaboration with other universities of Alexandria, laboratories, local, national, and international partners. Data collection, quality assurance, quality control, reliability and analysis were carried out for building up the GIS. Data concerning topography, land use, population distribution, groundwater resources, land ownership and transportation systems were all collected, analysed and verified. A GIS was built based on the above-mentioned layers. The GIS was used to identify and assess a suitable land for various land uses under pre-set specific criteria. Coastal zonation was performed to identify specific tourist activities and Carrying Capacity Assessment was made.

Based on available data and various field visits, an integrated development plan was introduced. The plan is based on identifying a number of specialised zones for tourism with specific recommended orientation. It involves development of supplies, such as water resources, and services, such as hotels, schools and transportation systems. The plan also integrates resources through cultivation of the hinterland to serve tourism.

The suggested plan is subjected to a detailed Strategic Environmental Assessment through building up and analysis of a strategic interaction matrix. Strategic analysis identifies areas of conflicts, areas of potential success and areas of potential impacts. It also suggests mitigation measures and precautionary stipulations for development.

The project has been very useful in drawing attention of officials and decision makers towards environmental problems of the region. A general policy development of the north coast has been crystallised based on integration among the limited resources. A pre-ministerial decree has been issued to ban construction on the north-western region until a complete integrated plan is approved by all concerned ministries. A detailed project has been launched by the Ministry of Planning and supported by the United Nations Development Programme (UNDP) to identify and assess resources and provide well integrated development plans. The new project has used results of Fuka-Matrouh project as the starting pilot project and has adopted the same techniques to extend and develop further experience in integrated planning of coastal areas.

Several projects conforming with the general plans for development suggested in Fuka-Matrouh project, were identified. Wastewater utilisation after treatment for establishment of greenbelt, extension of the water pipeline to the western region, development of water collection systems, development of transportation systems and an airport, upgrading of the hinterland and better integration of tourist, grazing and agricultural resources are among activities in progress as suggested by Fuka-Matrouh project.

No doubt, the project has helped to build capacity at the local level. It has set up an excellent example for development of many other suitable areas and has significantly contributed to development of many implemented activities, projects in progress and in the planning phases. In this frame, the CAMP Fuka-Matrouh has fulfilled its objectives. A general assessment of the project achievements and management are presented. Follow-up activities, suggestions for improvements and recommendations are also presented.

1. Background

Initiation of the Programme

This programme was developed at the request of Egyptian Government, who expressed its commitment to the philosophy of the integrated planning and management of the coastal area of Fuka-Matrouh, and invited the Co-ordinating Unit of the Mediterranean Action Plan (MAP) to initiate the Programme. The Programme was implemented within the MAP-UNEP, in accordance with the conclusions of the Sixth and Seventh Ordinary Meetings of the Contracting Parties to the Barcelona Convention, and in close co-operation with the authorities of Egypt.

Preliminary activities relevant to the coastal area of Fuka-Matrouh started in the end of 1988. Three MAP-PAP missions visited Egypt in the period 1988-1992. Together with the Egyptian authorities and the Regional Activity Centres (RACs), they prepared the Coastal Area Management Programme (CAMP) for Fuka-Matrouh. In October 1992, the Egyptian Government and MAP signed the “Agreement Relative to the Coastal Area Management Programme (CAMP) for the Coastal Area of Fuka-Matrouh (Egypt)”. According to that Agreement, MAP agreed to implement a number of activities, in co-operation with national and local authorities, as well as expert teams from universities and other organisations, with the main goal to ensure sustainable development of the Fuka-Matrouh area.

Programme Study Area

The proposed study area with its problems and concerns appeared to be a representative of the wider Mediterranean coastal region of Egypt. The urgency of the problems related to tourism development trends in the time of the Project inception was a good reason for the definition of the study area in its present boundaries.

The Fuka-Matrouh area is a semi-desert, sparsely populated area which is part of the north-western Mediterranean coast of Egypt, located approximately 210 km to the west of Alexandria. It is bounded on the north by the Mediterranean Sea, on the west by the escarpment of the plateau, and on the south by an arbitrary line at approximately 100 m altitude.

The region as a whole encompasses almost 500 km of coastline and is characterised by arid Mediterranean climate, with an average rainfall along the coast of 100-180 mm per year. It currently supports about 300,000 people whose primary source of income is derived from cattle production and fruit tree planting. The coastal zone had undergone degradation since the 11th century resulting from neglect and wars, nomadic life, cutting of trees and overgrazing. However, the zone was once highly productive, especially during the Roman times

when dry land farming practices were used based on the development of water resources and storage of rain water in underground reservoirs.

Another rather recent phenomenon is the business of building tourist villages along the coast. The majority of these villages are planned and designed as summer houses (secondary homes), intended chiefly to be sold on the domestic market. As such they are not used more than few weeks a year, and do not provide any significant number of new jobs for the local population or increase in tax base.

Taking into consideration its special characteristics, including the vicinity of the capital of Governorate, it was agreed that the area to be covered by the Project is approximately 70-100 km of coastal belt covering the area which starts from Fuka town area in the east to the City of Matrouh to the west. As regards the depth of the area, it was agreed that it will cover an area ranging from 15 to 20 km from the coast.

Institutional Arrangement

The following main actors were participating in the development and implementation of the CAMP Fuka-Matrouh:

- Mediterranean Action Plan of UNEP;
- local authorities and institutions;
- national authorities and institutions; and
- other international institutions and organisations.

A National Co-ordinating Authority was established at the Egyptian Environmental Affairs Agency (EEAA) with the objective to co-ordinate all relevant national institutions and authorities (financial, economic, planning, development, industry, energy, tourism, sanitation, transportation, water resources, etc.), receiving for this necessary scientific, technical, logistical and financial support as envisaged by the Agreement and its budget and work plan. Other international institutions and organisations participated in their respective fields of competence in accordance with the Agreement between the national co-ordinating authority and the MAP Co-ordinating Unit.

National Coastal Management Programme

With the passing of the Law for the Environment (Law 4/1994), and in recognition of the active development of the coastal zone and the increasing pressure and impacts on this zone from various sources, the EEAA was given the responsibility to initiate and co-ordinate national Integrated Coastal Zone Management (ICZM) activities. A National Committee for ICZM was initiated, and the Secretariat of this Committee was established under the Environment Management Sector of the EEAA. One of the major tasks of the National Committee for ICZM is to develop a programme for the development of a national ICZM Plan.

2. Fuka-Matrouh Area Profile

The Fuka-Matrouh area is located in the central coastal part of the Matrouh Governorate, which occupies the north-western portion of Egypt. The Governorate is one of the largest in Egypt, with an area of 212,000 km^2, representing 22% of the area of the whole country.

Climate

The climate in the region is of semi-arid Mediterranean type, which is mild rainy winter and long warm summer months. The controlling factors include:

- general circulation of the atmosphere;
- proximity to the shore; and
- orientation of the coast with respect to wind direction.

Rainfall varies from 140 mm/year near the shoreline to 40 mm/year in the hinterland mainly during the months of December and January. The minimum monthly air temperature lies near 7-8°C in January and reaches maximum 29-30°C in August. The prevailing wind is north-western, except during the southern Khamasine periods. The wind is strong (22 km/h) during winter and early spring, however, it reaches (15-16 km/h) during the month of October.

Geology

The coastal plain is mainly composed of oolitic and biogenic calcareous sand forming the coastal beach/dune ridges, and encloses the coastal Sabkha. Parallel to the ridges further inland, there is a series of older indurate calcareous ridges separated by depressions filled with lagoonal – sabkha deposits.

Geomorphology

The area is mostly covered by sedimentary rocks of the quaternary and tertiary periods. Three features characterise topography:

- long stretches of sandy beaches divided by a number of caves;
- a coastal plain that varies in width from 6 km in the east to 3 km in the west; and
- the land table south of the coastal plain is characterised by the presence of valleys of natural drainage systems.

Soil and Vegetation

- Essentially alluvial soil. Beaches are composed of white loose carbonate sands, well polished and round,
- The ridges are of marine origin with depressions of alluvial loam deposits.
- The land table soil is mainly loamy to loamy sand, underlaid with alternating strata of limestone and shale.
- Soils of the valleys are composed of loamy deposits and are suitable for cultivation.
- Dense cultivation and pastures exist within 25 m wide coastal belt. Further inland pastures are found and cultivation is practised.

Water Resources

- Limited surface water from rainfall, which is mainly lost through infiltration and evaporation. Very limited catchments.
- The main groundwater source is the Nobian sandstone reservoir. In Fuka region, there is a trapped groundwater reservoir with minimum safe yield of 5,000 m^3/day.
- Depth to water table varies from 1 m to 50 m depending on relationship to topography.
- Salinity ranges from 2,000-3,000 ppm, and varies with the season, being the best after the rainy season.
- In alluvial sediments near the coast, water quality is more uniform with TDS of 1,000-3,000 ppm.

Socio-economic Conditions

The population density in the Governorate is very low. According to the preliminary results of the 1996 census, the population of the Governorate amounts to 212,000 which gives a population density of around one inhabitant per km^2 (for comparison, the population density in the Nile Valley and the Delta is about 1,500 inhabitants/km^2). Population density of the study area is around 10 inhabitants/km^2. Population growth rate is around 3% while the national growth rate is 2.8%.

Matrouh city and its hinterland has the largest concentration of population, around 90,000 inhabitants, representing about 40% of the total Governorate population, while the urban population of the Governorate amounts to 76%. There are two different social groups, the Bedouins as native population, and immigrants who have migrated from the Nile Valley. The Bedouins used to live nomadic life, but are now mostly settled in rural areas and in the desert, while the immigrants live in urban centres employed in Government services and construction.

As for the educational status of the population, the 1996 Census preliminary results show that about 2.3% of the population had a university degree, while those who received high school certificates accounted for 18%. Illiteracy rate was found to be around 33%, whereas the remaining 46.7% were classified in the "can read and write" category. It is worth noting that as education has received recently considerable attention from the government, the number of students attending schools has increased.

In general, pasturing was for a long time the main source of income in the Governorate, but with time, agriculture has become the principal source. Since the rain plays an important role in agriculture and pasturing and determines the yield, the level of income in both is characterised by uncertainty. This particularly affects the native population, the Bedouins, around 80% of whom are engaged in sheep and goat herding and cultivation of barley, vegetables and fruit trees. This fact justifies the trend to diversity the economic activities and, accordingly, the sources of income.

3. Main Problems and Issues

The major environmental problems and issues in the Fuka-Matrouh area can be summarised as follows:

- Uncontrolled and unmonitored development of tourism which mostly excludes local population as beneficiaries while producing negative impacts on natural environment and infrastructure.
- Shortages of fresh water resources. Complex natural conditions that require sensible agricultural policies. Desertification and overgrazing.
- Ecologically and environmentally sensitive areas, as well as valuable cultural heritage.
- Absence of an effective land-use planning and development control system, as well as of a participatory approach in overall development planning. Lack of institutional capabilities.
- Insufficient integration of policies (horizontal and vertical) among various bodies in charge of different sectors or geographic segments of the coastal area.
- Nomadic life, lack of awareness, low income, very conservative society.

Advantages of the Area

The advantages of the area can be summarised as follows:

- excellent tourism potential;
- potential water resources inside and near the site;
- excellent weather conditions over the whole year;
- nearly a virgin land / an excellent case for possible implementation of plans;
- low population density (1 inhabitant/km^2 as compared to 1,500 inhabitants/km^2 in the Delta); and
- valuable cultural heritage.

4. Objectives

The main objectives of Fuka-Matrouh CAMP project are to:

- ensure sustainable development of the coastal area under consideration;
- present a pilot case study to decision makers for ICZM and SEA for immediate implementation;
- present an example for other similar areas which can be treated in an analogous way; and
- build capacity and upgrade awareness concerning coastal environmental management.

5. Activities

Activities carried out within the framework of the project involved many consultations and co-ordination among various stakeholders. These have been crystallised into four major tasks to be implemented in sequence.

a) Building a Geographic Information System (GIS/RS/DSS)

This task is a prerequisite for carrying out an Integrated Coastal Area Management (ICAM) Plan and Strategic Environmental Assessment (SEA) of that area. It has been implemented in co-ordination with the Faculty of Agriculture, University of Alexandria, and the Land-Use Planning and Environmental Management (LUPEM) Centre at Matrouh, with the help of the Priority Actions Programme Regional Activity Centre (PAP/RAC) and Environmental Remote Sensing Regional Activity Centre (ERS/RAC).

Activities for Inventory GIS Database

The activities consisted of several phases (IGSR, 1997):

- collection and testing of available data;
- design of the database;
- data entry and editing; and
- adding and integrating data contributed by other institutions.

Collection and testing of available data

An inventory of pertinent site information is compiled. The data of the study area is found in different forms. Cartographic maps and tabular data are collected. Satellite images are purchased and image processing is carried out at IGSR to identify land use in the area. Field surveys and questionnaires based on direct contacts were designed, administered and analysed. The task of collection and testing of data has been carried out in the following steps:

Digitising the cartographic maps: Cartographic maps were collected from the Military Survey Authority (MSA), the General Authority for Geologic Survey (GAGS), the Land-Use Planning and Environmental Monitoring (LUPEM), the Academy of Scientific Research and Technology (ASRT), and the Governorate of Matrouh. The collected maps were digitised and edited to correct errors. After the accuracy of digitised maps is checked, it is projected into a UTM projection system.

Repetitive field surveys: The main objectives of the field survey were to verify land-use patterns in the study area and the socio-economic characteristics of Fuka-Matrouh area. The main land-use pattern in the study area was obtained through the use of cartographic maps representing the main land cover and relief in the study area. Integration of data obtained from a satellite image is carried out and checked using GPS.

Collecting tabular data and building GIS: Socio-economic characteristics of the study area were mainly obtained from tabular data. These include data on population density distribution, age, sex, and main activities. Data are also collected on educational centres, schools, hospitals and health care centres, availability of telephone lines, transportation network, and administrative services. These data are obtained from the Information Centre of the Governorate of Matrouh.

Using digitised maps and satellite image classification results, a Geographic Information System was designed and built. That system contains a number of geographic and registered layers such as:

- Base map: This includes data layers for control points (tics) and basic topographic features.
- Coastal line: The first layer built for the study area is the coastal line. This coastal line represents the northern borders of the study area.
- Elevation contour map: This layer identifies contour lines of the study area. Elevation contour map is a familiar way to express changes in topography. Each contour value (10 meter interval) is digitised using the AutoCAD software. The contour layer (scale 1:100,000) is converted to raster format using ERDAS IMAGINE software. After the interpolation process is completed, the interpolated raster layer is used to calculate the slope and aspect. The digitised vector contour layer is converted to ARC/INFO GIS coverage and then transformed to UTM co-ordinate system.
- Slope map: The resulted interpolated raster layer is used to calculate the slope of the study area. The slope layer is classified into thirteen classes. To build a database system, this layer is converted to

ARC/INFO coverage. This coverage is transformed to UTM co-ordinate system. The slope map is used to display changes in elevation over distance. It is colour-coded according to the steeppness of the terrain at each pixel.

- Aspect map: The aspect map is used to show the prevailing direction that the slope faces at each pixel. Aspect map is often colour-coded to show eight major compass directions (North, Northeast, East, Southeast, South, Southwest, West and Northwest), or any of 360 degrees. Zero values indicate flat background. Aspect layer is calculated from interpolated raster layer. This layer is classified to nine classes (North, Northeast, East, Southeast, etc.). This coverage is transformed to UTM co-ordinate system.
- Transportation networks: The transportation network could be divided into two types of networks, primary network and secondary network. The transportation network (both primary and secondary) is represented by three GIS layers, the main road, the railway line, and tracks and old coastal road.
- Valleys and water catchments zones: This layer determines valleys and streams location and lengths. The study area depends mainly on rain and ground water as the basic source for various activities and for drinking. Hence, a great importance is placed on delineating valleys and its water catchments zones, for the development and management of the area. Not only are the primary valleys in the area digitised, but also the secondary and tertiary valleys, as well. Also, water catchment zones are identified and included in the GIS coverage.
- Soil types: The soil map of Academy of Scientific Research and Technology with scale 1:50,000 were used.
- Water Wells: This map presents locations and ownership of water wells.
- Tribe's ownership: This coverage delineates boundaries among tribe's ownership and communities. The map of tribe's boundaries was updated using ground field survey carried out by LUPEM project.
- Archaeology sites map: This includes known archaeological sites with scale 1:25,000. There are some important archaeological sites located in the study area most of which are from the Roman age, and some from the old Islamic period.
- Land System Map: This layer is obtained through image processing of obtained satellite images of the area. To identify the different land system in the study area, the following image processing work has been carried out:
    - A LANDSAT-TM satellite image acquired on 12 November 1992 is used for this part of the study. It consists of six spectral bands covering visible, near- and mid-infrared spectral ranges of the electromagnetic spectrum, and one band in the thermal infrared region. ERDAS software was used to process the image and obtain different themes (land system classes).
    - The false colour composite image clarifies the different appearances of tones and textural patterns of land objects in the study area. This composite image is used to produce unsupervised classified image (depending only on natural clustering of different pixels). The number of classes in the unsupervised classification image does not matter since some classes could be merged together. So, the final numbers of classes expected are thirteen classes.
    - The next step in the image processing work is to produce a supervised classification image using the unsupervised one. A supervised Maximum Likelihood Classifier was carried out to classify the image. A set of training samples representing 13 different classes was selected to represent different classes in the image.
    - Classes were converted into vector format (ARC-INFO format). Then, each class (layer) is edited to check the accuracy and clean any errors. The final step is to build the database of the 13 classes to obtain the final land system map.

b) Carrying Capacity Assessment (CCA)

The carrying capacity is defined as the maximum number of tourists that can visit a site without causing a destruction of physical, biological or socio-economic conditions or an unacceptable decrease of the quality of life at the site.

Tourism Carrying Capacity Assessment (CCA) studies for Fuka-Matrouh coastal zone have four basic objectives:

- to offer a concept of a well balanced tourism development by identifying environmental and socio-economic issues and problems and by assessing the resources and its interactions in the study area so that at the same time the needs of the population in the area will be fulfilled;

- to present and promote this concept to local and regional authorities, entrepreneurs, planners and local population;
- to prove the applicability of PAP methodology for CCA for this area, as representative for less developed Mediterranean countries facing challenges of fast and sometimes uncontrolled development; and
- to serve as a model to other areas in Egypt, as well as a pilot document for CCA in some other Mediterranean, or even countries outside the Mediterranean.

The optimum carrying capacity for tourism for the study area has been used also as an input for a coastal area management plan that will guide plans for tourism development in the study area.

Tourism Development Options/Scenarios

Four possible scenarios can be defined as:
- tourism development without restrictions and control based on domestic large and small-scale investments;
- the option of free transfer to commercial interests for overall development predominantly by foreign entrepreneurs;
- alternative tourism option; and
- sustainable tourism development option.

A field survey was designed and undertaken in the suitable tourist areas for the six tribes involved. The main objective is to assess acceptability of natives to various tourism ideas in terms of economic, social and cultural conditions and to estimate the size of the manpower that could participate in the development. Proposed tourism activities included: sailing, dinghy sailing, rowing, canoeing, water and jet skiing, surfing, sub-aqua diving and power boating. Results indicated positive attitudes with acceptance of about 75% of interviewed personnel.

Zones of Development and Carrying Capacity

Seven coastal zones were selected from the set of suitable areas for tourism identified by land suitability analysis. These zones are identified on Figure 1. Prioritisation for development among various zones is carried out based on specific standard criteria. Development constraints include the present haphazard development and scattered construction activities, which are threatening any attempt to develop well co-ordinated and integrated plans of development. Another constraint involves the shortages of services except at very limited localities; the most important of these are water supplies, reasonable quality health services and educational services.

Based on the standards of environmental capacity, the capacity assessment of each zone is estimated at three quality levels. It is estimated that these zones are capable of carrying a capacity of 100,000 to 300,000 tourists without causing deterioration of environmental conditions (IGSR, 1998).

c) Integrated Coastal Area Management (ICAM) Plan

The ultimate goal of current project is to develop a management plan that integrates the different aspects in the Fuka-Matrouh region. Such a plan will attempt to highlight potential opportunities, as well as obstacles and conflicts that could hinder development efforts. In order to attain this ultimate objective, a number of policy issues were identified, including the following (IGSR, 1998):
- ensure that natural resources are equitable between generations, through the promotion of conservation of natural resources of Fuka-Matrouh area including freshwater, bio-diversity, cultural heritage, and architectural and archaeological sites;
- renew or rehabilitate damaged resources;

- preserve and promote social equity and introduce the participatory approach;
- provide a mechanism for capacity building and planning; and
- encourage complementary rather than competitive activities.

These objectives will be considered within the context of:
- promoting expansion of tourist-related activities and investment opportunities in the area in a way as to ensure inter-sectoral integration;
- enhancing job creation opportunities and equity, and maximise socio-economic benefits to local population; and
- improving institutional capacity to manage and implement recommended plan actions.

Before we decide on the methodology, we have to identify and assess potentials and constraints of the area, namely:
- natural attractions;
- cultural heritage;
- economic resources base for industry;
- socio-economic potentials; and
- availability of environmental laws.

The constraints include:
- shortages of water resources;
- shortages of energy resources;
- lack of transportation network;
- shortage of communication;
- shortage of services; and
- lack of institutional capabilities.

Methodology

Stage 1

Scoping is carried out to identify the real issues for management. This involves information gathering to give a picture of the management situation prior to formulating the Management Plan. This stage may result in the production of a preparatory Document, or Interim or Issues Report, which serves as a consultation document, helping to shape and build support to the Plan.

Stage 2

Planning what is desired as an outcome and how to achieve it, i.e. preparing the Work Programme for the management planning exercise.

Stage 3

Agreeing the Management Structure for the Plan is essential with any project where there are multiple responsibilities. An accepted format is the formation of a Steering Group or Working Party consisting of the primary decision makers. The Government advises that local authorities should take the lead in preparing coastal management plans.

Stage 4

Carrying out the work (i.e. analysis of information, formulation of objectives and production of a detailed Action Programme).

Stage 5

Presenting the plan, firstly, as a draft for consultation, to allow for comment and public/user reaction, and then as a finalised document.

General Outlines of ICAM Plans for Development

Based on the above-mentioned five stage methodology, a plan was developed (IGSR, 1998). The plan involves several components and can generally be summarised for various sectors as:

- **Water Supply**: Upgrading and building of water collection, storage and distribution systems.
- **Wastewater and solid waste disposal**: Building of water treatment, recycling and safe disposal systems.
- **Resource development**: Development of greenbelt and associated activities (as much as achievable) based on use of treated wastewater. Development and upgrading of protected areas.
- **Energy**: Increased use of solar and wind energy.
- **Industry**: Development of food processing industries, handcraft, wood industry and sheep husbandry.
- **Agriculture**: Encouraging rain-fed agriculture and integrated grazing systems in the hinterland.
- **Roads**: Upgrading the network of public transportation.
- **Services**: Construction and upgrading of airport structures, hospitals, schools, communication links, hotels, electricity, supermarkets, gas and car stations, etc.
- **Tourism**: Development of zonal tourism, zonation with specific attractive projects based on proper Carrying Capacity Assessment.
- **Infrastructure**: Development of institutional capabilities in monitoring, assessment, feedback and capacity building. This capability is necessary for enforcement of land-use plans.

d) Strategic Environmental Assessment (SEA)

Strategic Environmental Assessment (SEA) has been described as a process of anticipating and addressing potential environmental consequences of proposed initiatives at higher levels of decision making. This work aims to assess from a strategic perspective the environmental impact of the proposed Integrated Coastal Area Management (ICAM) Plan of Fuka-Matrouh.

In order to attain this objective, a number of activities were carried out by the team (IGSR, 1999). The methodology involves:

- determining the need for SEA;
- establishing a work programme;
- determining the objective(s) of Policy, Plan and Programme (PPP);
- identification of effects and impacts of implementing the proposed Integrated Coastal Area Management plan;
- identification of alternatives;
- studying mitigation measurements for the proposed actions;
- environmental analysis, impact evaluation and synthesis; and
- establishing a monitoring and feedback mechanism.

Matrix Method

The matrix method is one of the widest methods used in Strategic Environmental Assessment (SEA). It correlates cause-effect relationships between specific project activities and impacts. Matrices typically employ a list of human actions in addition to a list of impact indicators. The whole multidisciplinary team has carried out matrix evaluation together. Suggestions and recommendations of the consultant have also been taken into consideration.

Environmental Analysis

Human actions in study area are classified into six classes: transportation, urbanisation and services, industrial development, agricultural and related activities, tourism development, and complementary activities.

1. Transportation

The alternatives for transportation upgrading are very limited. For example, the airport as a project has no alternatives in our case because the Cabinet already approves its location and nature. The construction of this airport is in progress. Upgrading of railway and roads is also in progress, there are no alternatives of significant importance.

2. Urbanisation and Services

The upgrading of railway will be on the track already existing. As for the roads, the only alternatives are in terms of varying the shape and location of local road network. When we talk about urban and residential

areas, including infrastructure and services, we have areas that already exist, and others will be constructed and developed later. The first type has no alternative except in the form of development yet the location is fixed. As for the second type, it is free in terms of location and form. This will enable the chance of reducing the adverse impacts of such development. As to proper environmental assessment, an EIA can be undertaken before the development being carried out. Fresh water supplies in the study area, for instance, come from the East through pipelines and El-Nasr canal. Their locations were chosen by planners and engineers of MIPW* and Matrouh Governorate. This means that there is no change of making major changes in terms of location and specifications. Possible alternatives may be to enhance these water supplies to give best productivity with minimum loss.

3. Industrial Development

Suitable site selection for new industries should be carried out based on sound technical aspects. Also, there are great potentials for upgrading and development of the traditional small and medium industries, such as food processing, wood industries and handcrafts. The development of heavy industries can be an option, but their locations have to be selected properly.

4. Agriculture and Related Activities

Many options of agricultural activities are open in the hinterland. These are either rain-fed or based on water supplies through extension of El-Nasr canal. Grazing land is also available for animal husbandry. Integrated grazing activities are necessary. Products could be easily marketed for tourists during summer.

5. Tourism

Alternatives of tourism activities can be in terms of types. As for their location, there is no option, particularly in early development stages, but to be on coastal areas. Concerning the types of tourism activities, tourist villages can be provided on hotel basis or be sold, as in the case of tourism villages located on the northern coast of Egypt. This type of villages was rejected by the planning team as it provides no year-long activities and does not allow for foreign tourism development. This means that there is no alternative for tourism villages on hotel basis. Additionally, alternatives can be considered for the specific activities to be associated with tourism, such as a marina, trips to historical sites, etc.

6. Other Activities

There are some activities, such as quarries and land reclamation for agriculture, which have to be situated in specific locations. These activities (e.g. quarries) cannot be transferred to other locations yet; they have serious environmental negative impacts. To reduce these impacts, the activities should be assessed carefully and, if they would affect other activities, e.g. tourism, they have to be abandoned.

Land reclamation can provide great potentials for achieving self-sustained areas in terms of vegetables and fruits. It will provide opportunities for the Bedouin and enhance the quality of life style in the area.

Suitability analysis based on GIS, associated with Integrated Coastal Area Management, can enhance a comprehensive vision of development in the study area. This vision must be taken into consideration when we attempt to deal, in some details, which is not the case with SEA.

Mitigation Measures

This section reviews specific project-related environmental impacts and, some of the mitigation measures that need to be considered in a proper EIA. Environmental parameters are attributes of the environment that may be measured quantitatively or defined qualitatively. These environmental parameters have been shown in impact matrices. Qualitative parameters include environmental attributes, such as aesthetic quality, community (human).

1. Pollution

Pollution of the physical environment due to project activities, whether related to project development or during its subsequent operational existence, must be considered at the outset in each of the following areas. In the following, the expression “Regional” denotes problems that have wide effect on the study area. On the other hand, the expression “Local” refers to limited, geographically or effectively, problems.

* Ministry of Irrigation and Public Works

1.1 Air Pollution

Actions that Cause Air Pollution on the Regional Level: Many of the actions proposed in the study area cause air pollution. Highways, airport and marina are expected to be sources of Carbon mono- and dioxide, Sulphur Dioxide, Hydrocarbons and Lead. Yet, in open areas, such as our study area, that will not be such a serious problem.

Actions that Cause Air Pollution on the Local Level: Quarries, located on the highways, are monopoly by Bedouins. The special products of these quarries are the sand for construction processes in the tourist villages. Quarries are the main source for dust in the study area, but their effects are limited to its locations. So, air pollution by dust is distributed as hot spots on the highways.

Mitigation Measures on the Regional Level: The following are some of the means available for the control of polluting discharges into the atmosphere, and thereby of their detrimental effects. Reduction of pollutant discharge at the source by application of control equipment to remove gaseous pollutants is based mainly on the principles of absorption, combustion, and adsorption. These methods must be used for any large-scale industry proposed in the study area. The most desirable mitigation measure is not to produce the pollution in the first place. Reduction at source can be achieved through raw material changes, operational changes, modification, or by replacement of process equipment. Also, the fuel to be used in the study area must be lead free.

Mitigation Measures on the Local Level: To reduce the air pollution due to dust, quarries must be transferred out of the study area. It is also recommended that no licenses are issued for further quarrying along the highway. Already existing quarries could be filled or used as water collection systems, if suitable.

1.2 Water Pollution

Water pollution may be defined as: “such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or industrial effluent of any other liquid, gaseous or solid substance into water. That is likely to create a nuisance or render such water harmful or injurious to public health of safety, or to domestic, commercial, industrial, agricultural or other legitimate uses or to the life and health of animals or plants or of aquatic life”.

The main sources of water pollution on Regional and Local Levels are as follows:

- sewage and other oxygen-demanding wastes which contain decomposing organic matter;
- industrial waste, which contains toxic agents ranging from metal salts to complex synthetic organic chemicals;
- agriculture waste, which comprises fertilisers, pesticides and biocides; and
- thermal pollution.

Actions which cause Water Pollution on the Regional Level: Water pollution can be released from many actions in our study area. Tourist village and residential areas will be the main sources of sewage during summer. Agriculture development will also release agricultural waste. These actions are widely distributed in the study area, and, therefore, cause water pollution on the regional level.

Actions which cause Water Pollution on the Local Level: An Electric Power Plant found on the seacoast, may cause a thermal pollution in a closed area from the sea at its location.

Mitigation Measures on the Regional Level are as follows:

- Use of Treatment Process Equipment: Pollution control equipment should be operated in conjunction with an effective monitoring programme. This equipment must be used in the tourist villages.
- Control of hazardous wastes, that may be released from residential area and large scale purposed industry.
- Plant Area Drainage: The plant surface drainage system should be carefully designed to prevent flooding of the plant area, and the treatment equipment must be used.
- Solid Wastes: Industrial plants can usually dispose off non-hazardous organic solid wastes and refuses most economically by means of sanitary land-filling, either by building/operating their own landfills or by contracting for this service with a municipal system.

Mitigation Measures on the Local Level: Cooling water systems must be used with electric power plant, but plant cooling water systems are sometimes of the non-circulating type (single pass), which requires huge quantities of water to be extracted from a nearby surface stream and usually returned to it. This returned

water might contain a substantial amount of pollutants, which can be very difficult to remove because of the large volumes involved. Where re-circulatory cooling towers are used, various types of chemical compounds are added to the re-circulating water for the purposes of slime and corrosion control and these usually contain toxins. Hence, a provision must be made for the removal of the toxins from the cooling tower blow-down and special care is needed to ensure that the system will be kept properly functioning to achieve complete treatment of all blow-down.

1.3 Noise and Vibration

Noise can be defined as an unpleasant or disagreeable sound, or sound without value, that causes discomfort to the listener. Another definition of noise can be "wrong sound, in the wrong place, at the wrong time". Noise pollution thus refers to unwanted sounds released into the atmosphere leading to discomfort and health hazards for human and animal life.

Noise and vibration sources:

- ***Industrial:*** Any large-scale proposed industrial actions may cause noise.
- ***Construction Work:*** Fast urbanisation calls for the construction of roads, bridges, and huge residential and commercial complexes. This has lead to a high level of noise pollution in large urban centres. Noise due to construction activities in areas inhabited by wildlife can cause serious disruption to habitation patterns.
- ***Vehicular:*** Traffic noise is created by a continuous flow of vehicles and is generated by engines in jets, motors in trucks and cars and the contact of tires on roads and wheels on rails.

Actions that release Noise and Vibrations on Local Level: Airport, Marina, construction operations on residential areas and tourist villages are the main expected sources of noise and vibrations. All these activities are classified as local problems.

Mitigation Measures

- *Noise Control in Industry:* The reduction of noise at the source or insertion of a barrier between the noise source and the hearer (receptor) usually achieves noise control at an industry. The machine manufacturer usually does reduction of the source by modifying components or processes, such as: the use of belt drives in place of gear drives, welding in place of riveting, insertion of resilient damping material between impacting metal parts, reducing the response of vibrating surfaces by increasing the stiffness and mass, and reduction of air turbulence. Noise enclosures (barriers) attenuate noise by enclosing either the machine or the operator in an acoustically insulated environment. The enclosure should be as heavy as necessary to achieve the attenuation should be impervious to airflow, and the dimensions must be several times the wavelength of the frequency of sound. An absorbent lining should be provided to limit the increase of noise level within the enclosure resulting from reverberation. Partial enclosures on barriers are of limited use.
- *Noises and Vibration Abatement during Construction:* Most abatement measures during construction are similar to those described above, i.e. they call for the use of sound barriers and noise reduction from equipment and vehicles. Additional abatement measures may be required in special cases, such as the use of vibration-free piling methods where conventional piling would be hazardous. Except in special situations, because noise and vibration from construction are of a transitory nature, no attempt is usually made to keep them below the threshold of human perception but rather an attempt is made to prevent health or structural damage. Thus, the key to control is effective monitoring and enforcement.
- *Noises and Vibration Abatement for Projects with Permanent Effects:* Activities, which may affect the "neighbourhood" noise environment, can be many, from the local restaurant to market sounds to an airport. Most control measures are regulatory, including land-use zoning and environmental quality standards for noise. Most abatement measures, which have been developed for noise and vibration for highway and airport projects, are applicable as well for other projects. These measures can be summarised as follows:
  - acquisition of property to serve as buffer zone between the source and the receptor;
  - construction of noise barriers or devices;
  - noise insulation of public-use buildings, such as schools and hospitals;
  - management measures, such as prohibitions on certain types of vehicles for roads; time-use restrictions for industry, highways and airports; and flight pattern restrictions for airports;
  - improvement of equipment or vehicle structure; and

- improvement of structural design, including buildings, airports, highways, railways and other structures, to reduce transmission of noise and vibration.

2. Mitigation Measures of Impacts on the Natural Environment

Almost any development project will involve the disturbance of the natural environment. When the area involved is small, the environmental impact is likely to be minimal. However, the cumulative impacts of many separate small disturbances can be substantial. The kinds of alterations to the land that are of concern include clearing of forests, topsoil removal, grading, filling, draining, landscape planting, cultivation, paving, building construction and waste disposal. The direct and immediate environmental impacts of these alterations can be grouped into four categories:

2.1 Loss of Habitat

Any of the activities listed above can result in a loss of habitat. The seriousness of the impact depends on the type of habitat being converted, as well as on the way in which the conversion is carried out.

2.2 Loss of Soil Productivity

Certain forest soils, when stripped of natural cover, become laterized or subject to rapid erosion, and essentially unproductive. Removal of the topsoil during grading also reduces productivity. Soil loss through erosion has the same effect, and in addition may degrade water resources. Conversion of high-quality agricultural land to urban uses also reduces productivity.

2.3 Modified Hydrology

Clearing, grading, filling, paving and construction of buildings alter patterns of surface runoff and infiltration. The results of this include local ponding and flooding, increased flood frequency and/or magnitude downstream, lowered water table, diminished groundwater recharge, and reduced flows in streams.

2.4 Soil Contamination

Soil can be contaminated through salinization, if irrigation systems are not properly designed and operated. The disposal of hazardous waste or improper operation of solid waste and land-based wastewater disposal systems can also contaminate it.

Mitigation Measures

When sensitive ecosystems are involved, the EIA should carefully assess the impacts, examine the alternatives that were considered, and perhaps propose new alternatives:

- Appropriate catchment management is important for proper drainage, maintenance of groundwater and flood control. Careless development upstream resulting in the clearing of catchment areas can cause erosion and create flooding and siltation problems downstream, as well as the reduction of dry season water flows. Cleared and sealed areas, such as roofs, roads and paving deliver considerable runoff during periods of heavy rain.
- Avoid construction on steep slopes, retain forest cover, stockpile and replace topsoil, conserve prime agricultural land, control erosion and sedimentation through use of mulch during construction. Rapidly replace vegetative cover on slopes and construct siltation basins and barriers of straw or filter fabric to protect waterways.
- Use design and construction techniques to maintain or replace soil drainage channels and retention or detention structures to avoid increases in rates of runoff Take measures to offset reduced infiltration (porous pavement, infiltration ponds, etc.), and conserve open spaces on critical aquifer recharge areas.
- Development of floodplains may result in loss of life and damage to property from floodwaters. Frequently flooded areas should be reserved for open space, recreation, wildlife or agriculture.
- Design features to prevent disturbance of the flow patterns and hydrologic regimes critical to conservation of the ecosystem.
- Enhance and/or protect other areas in substandard ecological conditions to offset losses at project site.
- Construct artificial wetlands to replace areas lost due to project development.
- Strengthen institutions to manage and protect land and water resources.
- Include local NGOs in the institutional arrangements for ecosystem conservation.
- Promote development of national wetland incentives and management strategies.

- Require wetlands concerns to be considered in national and local planning, laws, and decision-making processes.
- Introduce environmental education programmes to disseminate knowledge on the importance of land resources and wetlands.

3. Mitigation Measures on the Social Environment

The construction and operation of a large development project has its negative and positive impact on the host community. In particular, if the community is small the project may totally disrupt their relationship with the ecology and deplete the resource on which they depend. It is important to identify the relationship between the community and their environment and assess how the project will affect the relationship.

A primary consideration in any assessment of social impacts is that personal, interpersonal, and institutional components of social life are strongly integrated. For the purposes of impact assessment, distinguishing two sources of social impacts, project-level and action-level is useful.

Project-level source: Social perceptions of the proposed project was undertaken as part of project rather than actual action or activity development. At this level, the potential for impact arises out of the emotions triggered in individuals who perceive the proposed project as an intrusion into their lives. In some instances, the intrusion may specifically be perceived as a physical threat. In others, the intrusion may be more generally perceived as a nuisance, an unwarranted assault on privacy, or even a flagrant reminder of social, economic, or ethnic prejudice.

Action-level sources: Objectively definable project-related actions, activities and design features and attributes. At this level, which tends to receive the vast majority of the assessment effort, the focus is on the casual chains initiated by actual project development involving specific project activities. The importance in distinguishing between these levels of impact is that, unlike the physical environment in which impact must arise out of changes in the objective attributes of project activities, the social environment is subject to impacts arising out of the subjective workings of the human mind. Some examples of personal and interpersonal impacts are discussed below.

3.1 Social Impacts and its Mitigation

Income Disparity: A local economic boom is likely to result in a relatively high rate of inflation that is not likely to affect the well-paid project worker but may quickly become prohibitive to the “breadwinner” who is otherwise employed in the project area but whose income remains fixed (e.g., a teacher, government employee, subsistence farmer).

Lifestyle impacts: Significantly higher project-related jobs may not only recruit local workers away from their previous work but may also serve as a model of an alternative lifestyle that directly contradicts local values and belief. Redirected values and lifestyles include not only those directly related to project-defined jobs, but also those related to project-related opportunities, such as drugs, prostitution and other criminal activities, each of which has important ramifications regarding public health and safety that may easily persist beyond the completion date of the project. Alternative lifestyles and values exhibited by imported workers may, of course, repel as well as attract local residents. These lifestyles may win new converts or reinforce historical barriers that effectively separate people, including differences in religion, ethnicity and race, as well as differences in behaviour regarding the diverse necessities of daily life. When local residents as real threats, blasphemies, insults, or violence perceive such differences is likely to arise.

Interpersonal Impacts: Regardless of the personal impact on families, social impacts include interpersonal impacts that may arise from the removal of individuals from an ongoing social network. Depending on the attitudes, values, and behaviours of those persons to be displaced and of the community as a whole, the impacts removal of certain individuals from a locality may be viewed by the community, in some instances, as a positive reinforcement of shared community values and, in others, as quite the opposite.

Disruption of Community Values: The loss of structures and open areas within a community, as a result of project development, may also lead to a variety of secondary impacts, depending on the contribution of those structures and areas to both socially acceptable and deviant values and behaviours. Regardless of its primary use, a school, a place of religious worship, a governmental office, or even a privately owned business may also serve an important community values as a place of public assembly important for recreational and other neighbourhood social functions. Although the relevant educational, religious, governmental, and business functions may easily be relocated without functional interruption, ancillary but no less economically

significant neighbourhood functions may not be as easily or successfully relocated. Of course, buildings and their associated properties, as well as open areas, may also be the reflection of behaviour that is contrary to local community values.

e) Knowledge of the Archaeological and Historical Heritage

As to protection and conservation of submerged and terrestrial coastal historical remains and development of CAMP Fuka-Matrouh, we can recall that the management of the coastal area has to be defined as a dynamic process in which a co-ordinated strategy is developed and implemented for allocating of institutional, environmental, social and cultural resources, to reach the conservation and multiple sustainable uses of the coastal area. The Summit of the Earth (Rio de Janeiro, 1992) recommended, in section 17.6 Agenda 21, that coastal states establish, or reinforce the mechanisms of co-ordination suitable for integrated co-ordination and sustainable development of marine and coastal areas and their resources, at local and national levels.

The integrated management of the coastal area involves global assessments, implementation of objectives, of a planning and management of coastal systems and their resources, taking into account historical, cultural and traditional prospects, conflict interests with measures to take, and uses; it is a continuous and evolutive process to reach a sustainable development. The successful management of the coastal area needs reliable and accurate information, which have to be available. The more effective instruments for providing such information are the "map-resources" and atlases.

Conclusions

At the analysis, the statement which can be made from the knowledge, safeguard, planning, implementation and management of the coastal area of CAMP Fuka-Matrouh, is the following:

- necessity of an operational management plan for the coastal area;
- necessity of a database on the evolution of the sea level and to forecast suspended sediments under various meteorological conditions;
- establishing of a map showing the areas of ecological, archaeological, historical and traditional importance;
- synthesis of geomorphological observations made on the evolution of sea level in the related area with a mention of main subsidence or raising up of soils;
- necessity of foreseeing a rehabilitation programme for the impacted areas; and
- necessity of researching or mentioning the submarine archaeological resources in the CAMP Fuka-Matrouh.

Recommendations

In conclusion to this report, it can be recommended as follows:

- The representatives of the Supreme Council of Antiquities and the Minister of Education should be partners of CAMP Fuka-Matrouh.
- The conservation of artefacts and sub-marine sites should be incorporated into CAMP Fuka-Matrouh as a specific question with the objective of developing a conservation plan of terrestrial and sub-merged coastal cultural heritage.
- The sub-merged archaeological sites should be earmarked on a map and taken into account in the plan on pollution of various maritime and telluric origin. Campaigns of survey have to be planned before any development work. The purpose is to delimit the archaeological areas in relation with the Antiquities Department, and to precise the nature of these areas with the establishment of a topographic map and a graphic and photographic documentation of each historic, archaeological and architectural site.
- A map of marine bed must be stabilised or updated, with contour lines of a metre, thanks to a sonar linked to a differential G.P.S. Moreover, the presence of numerous ancient installations of trading and agricultural character has been recognised in numerous places of the coastal area. It is an important element for the cultural dimension, which can be developed in the CAMP Fuka-Matrouh:
    - to realise the inventory of these traditional infrastructures, now underground, with localisation and description. These are buildings which belong to the sustainable development of Egypt; and
    - to integrate the traditional infrastructures in tourist development planification and in the development areas of activities and buildings.

- The geographic analysis of such a site should allow to estimate the importance of the phenomena of subsidence in the concerned area of CAMP Fuka-Matrouh. A comparison must be established, thanks to the old documents to be able to appreciate the importance of the phenomenon of subsistence, joint to the phenomenon of raising of Mediterranean waters. Searches have been initiated in Egypt, in the field of geomorphology by specialists of the shift of the marine level, and have to be diffused in 1999.
- A database on environmental conditions affecting terrestrial and sub-merged coastal sites should be realised.
- The environmental monitoring and research programmes on coastal area should be encouraged.
- Intensive training programmes, covering various aspects of archaeological survey should be organised parallel to development work of the coastal area.
- The co-operation and support at the international level in the field of cultural heritage should be encouraged.

6. Achievements

Three governmental authorities were directly involved in the study, each representing a sector or more. The Egyptian Environmental Affairs Authority (EEAA), representing the environment sector, the Tourism Development Authority (TDA), representing tourism sector and the Governorate of Matrouh, representing administration and local Governorate sector. The involvement of top-level decision makers in the project has created interest in the outcome of the project at all levels. This has made the government conscious of the sensitivity of many coastal sites and has pushed a number of important steps towards the implementation of Fuka-Matrouh project plans on a larger scale. Some examples of the achievements, implemented activities and policies are outlined below.

7. Follow-up Activities and Governmental Response

Several important direct achievements have been reached. These include:

- **Institutional Capacity building:** The project has significantly paved the road for capacity building at the local Governorate of Matrouh by training personnel on various aspects of data collection, field surveys, data verification, data analysis and GIS processing. This group constituted first steps towards establishment of the Governorate Information System, which is now progressing towards updating of already existing data. An office for urban development has emerged as responsible for co-ordination of national activities on the local scale.
- **Technology Transfer:** The project has transferred many recent techniques and software to the local Governorate and to the University of Alexandria personnel to help upgrade capabilities and techniques. Various training activities were carried out on aspects of remote sensing, GIS analysis, Carrying Capacity Assessment (CCA) and Strategic Environmental Assessment (SEA).
- **Data Collection and Building of GIS:** The project has actually implemented data collection and analysis work in co-operation with personnel of the local Governorate and various members of the University of Alexandria. This GIS system has been utilised to identify suitable land for various activities and was also used to assess carrying capacity at the pre-specified zones.
- **Raising Awareness:** The project has significantly raised awareness of decision makers and stakeholders through direct contacts and through questionnaires concerning already existing resources and problems in the region.
- **Resource Conservation:** The project has significantly contributed to resources conservation in the region through influencing decisions concerning unplanned development.
- **Formulation and Implementation of National Policy:** The project has motivated the Pre-ministerial decision of banning urbanisation in the north coast until an integrated plan is worked out among concerned ministries and stakeholders. It has also influenced decisions towards providing services and plans to the region.

In particular, the following activities have been implemented in the region based on the information provided by the project:

Ecology

- Realisation of the ecological sensitivity of the coastal area has prompted co-ordination between the Ministry of Agriculture and the Protectorate Omeid. The latter has been considered a suitable area for re-cultivation of some endangered species and is being developed for ecotourism, education and awareness.
- Several measures have been carried out at a number of beaches by the Ministry of Public Works for protection against erosion and accretion problems caused by unplanned activities on the coast.
- Ras Elhekma site has been excluded of any urban development due to its special scenic views, endangered marine and sponge resources and cultivated fig trees.
- Some small oases were identified in the hinterland and are now considered for protection and development

Data, Information and Communication

- A Centre of Information and Decision Making has been developed and upgraded at the Governorate of Matrouh. The main objective is collection, analysis, interpretation and dissemination of data to investors and governmental officials. It is suggested that this centre could play an essential role to help investors identify projects and provide them with necessary data for assessment of their projects.
- Establishment and upgrading of communication links at several sites in the region.

Infrastructure and Services

- Upgrading of infrastructure and services includes Alamain, Matrouh and Siwa airports, as well as the railway and roads network have been carried out. Plans have been prepared for development of Alamain Fayyoum road, which will drastically reduce the distance travelled between Cairo and the west coast. Establishment of a more reliable and safe network for transportation between the region and oases has been progressing. The Ministry of Petroleum has also planned establishing a number of gas stations along these roads.
- An orientation towards exporting products, such as medicinal plants, special types of olives and palm trees.
- Several water pumping stations have been planned for providing fresh water through a pipeline to the north-western coast. Several structures for protection against stream torrents have also been established.
- Wastewater line of various resorts has been implemented and is being used for tree irrigation and upgrading green areas south of the resorts. Dabaa-Matrouh water pipeline, with a length of 187 km, the second and third stages of the untreated water line, with a length of 80 and 40 km, respectively. In addition, plans for upgrading the Ameryah water station to increase its capacity are under implementation.
- There is an increased pressure on solving problems of landmines in the area. This is one of the most important obstacles against development in the area.
- A large hospital has been established along the road and two other large hospitals are planned. Many schools are planned.
- Upgrading of Matrouh Harbour for receiving commercial ships is also planned.

Industry

- Several large electric power stations have been built to provide and support industrial development over the coastal zone in the future.
- Several projects have been suggested for use of minerals and extraction of salt.
- Increased interest in use of solar and wind energy. Some pilot experiments are being explored.

Tourism

- Several centres have been established for promotion and support for desert adventures in Matrouh and Marina.
- Several new resorts are planned. Projects are being investigated for EIA and integration with the hinterland.

Policy and Planning

On the side of policy planning, several important issues were raised:

- A Pre-ministerial decree was issued banning any constructions on the north-western coast, except after a well co-ordinated plan among Ministries of Planning, Tourism, Environment and Local governance is advanced and approved. This minimised haphazard development, saved land resources and initiated

integration among Ministries for development. According to the above-mentioned decree, no allocation of a land-use plan until the need of each sector is evaluated, assessed and approved in integration with all other sectors on a regional scale. Development of the hinterland is an essential resource for integration.

- A general policy of trying to establish settlements of Bedouins by providing services, upgrading awareness and enhancing cultural resources.
- The need for wastewater treatment policy has been established. Treated wastewater is used to establish greenbelts to the south of resort villages to provide protection against dust associated with southern winds.
- A project entitled "Economic and Social Planning for Spatial Development" supported by the Ministry of Planning and UNDP has been initiated to put forward an integrated plan for development over the whole north-western coast. The project is based on the pilot results of Fuka-Matrouh project and built on the outcome of the project.
- Serious trials of integration on both the horizontal and vertical scales of the administrative system are progressing. The possibilities of integration of water resources in Siwa Oasis suggested in Fuka-Matrouh project are now investigated thoroughly.
- A committee has been created of Ministers of Planning, Tourism, Housing, and Local Governance, as well as the governors of Matrouh and Alexandria to co-ordinate large projects in the region.

Future Governmental Policy

Concerning the Government policies in the study area, one of the main themes is to continue the development of the north coast of Egypt. This is to be carried out parallel to the development of other axes, such as the Red Sea, Sinai, and Southern parts of Egypt. The ultimate target is to increase the inhabited areas to 7-8% of the total area of Egypt. According to the Fourth Five-Year Economic and Social Plan, this would involve, for the study area, the completion of the following projects:

- Dabaa-Matrouh water pipeline, with a length of 187 km;
- the second and third stages of the untreated water line, with a length of 80 and 40 km, respectively; and
- upgrading the Ameryah water station to increase its capacity.

8. Assessment of CAMP Management

It is necessary to evaluate CAMP management on two categories: strategic issues vs. local actions, and integration of activities

Strategic issues vs. local actions

- The deep and wide insight of CAMP personnel, close co-operation and follow up by e-mail were most influential in developing a team capable of carrying out other projects.
- Frequent exchange of visits, reference material and software and opinions were very useful.
- The management through the participatory approach of CAMP and local team was very useful.

Integration of activities

- Assignment of specific tasks to experts and proper co-ordination, then integration was most influential in generating local teams of multidisciplinary specialisation.
- Co-operation among various consultants and their counterparts local researchers were very effective.

9. Lessons Learned from the Project

Several important lessons were learned:

- Haphazard development, shortage of data, shortage of services and lack of awareness are the main problems facing proper development in the coastal desert areas.
- In view of the limited resources and sparse population, integrated development is necessary modality for development not only in the tourism sector, but also in grazing and agriculture.
- Without proper monitoring, assessment and enforcement of policy and plans all efforts will go in vain.

- In view of the limited resources, it was found necessary to encourage settlement of Bedouins and establishing settled communities and integrated development programmes.
- Water treatment and conservation programmes are necessary prerequisites to settlements and developments in the region.
- Establishing a strong institutional capability in monitoring is necessary for enforcement of the policy and plans of development.
- Social upgrading and awareness programmes must accompany any plans of development.

10. General Conclusions

- A Geographic Information System (GIS)/Decision Support System (DSS) for Fuka-Matrouh region have been built based on Remote Sensing (RS) and ground-based surveys. Decision support has been carried out to assess suitability for various land uses. It is necessary to continue updating and upgrading the system.
- Capacity building for data collection, analysis and interpretation and for carrying out Carrying Capacity Assessments (CCA), Integrated Coastal Area Management (ICAM) and a Strategic Environmental Assessment (SEA) has been upgraded. A very useful case of technology transfer has been established.
- An Integrated Coastal Zone Management (ICZM) plan for implementation and development by concerned tourism and governmental authorities has been initiated. Tourism Development Agency (TDA), EEAA and Governorate of Matrouh have actively participated and co-ordinated with the project. An exit strategy is developed through direct co-ordination of the TDA, EEAA and the Governorate of Matrouh; hence, adoption for implementation is foreseen.
- Experience gained in the analysis of Fuka-Matrouh case study can be replicated in any other coastal desert area in Egypt or outside.

11. Specific Recommendations

- To insure sustainability and continuous validity of the information, it is recommended that an upgrading and updating of the GIS and Remote Sensing inventory be carried out periodically.
- An institutional capability in monitoring, data base building and assessment for proper coastal zone management and sustainable development, must be established. Availability of data for planners and investors must be emphasised.
- Development of coastal management guidelines and criteria concerning CC zonation, land uses, public access and integration with nearby resources and inhabitants are necessary.
- Integration of marine activities, shoreline and beach activities, and the hinterland from the points of view of the physical, administrative and socio-economic aspects are necessary.
- Updating archaeological database of the coast, identifying and documenting new cultural centres and marine submerged sites is also emphasised.
- Providing services and monitoring plans for settlement and integration of local inhabitants must also be emphasised.
- Paying special attention to water collection systems, groundwater quality and protection, cultivation of specific plant species and integrated grazing systems may prove to be a useful orientation.

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CAMP "RHODES", GREECE

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A series of reports has been reviewed for the preparation of this document including:

- CAMP Rhodes reports, like the Blue Plan report (Gonod P.F., 1992) "Prospective de l'ile de Rhodes", the UNEP/MAP/BP (1993) "Development-Environment Scenarios for Rhodes", the UNEP/MAP/PAP (1996) "Integrated Planning Study for the Island of Rhodes" and the UNEP/MAP (1996) "Report of the Conference on the Presentation of the Final Results of the Coastal Area Management Programme for the Island of Rhodes (14-15 May 1996)";
- CAMP report, like the METAP (1997) "Assessment of Coastal Area Management Initiatives in the Mediterranean: Experiences of METAP and MAP";
- Spatial Planning Studies of the Ministry for the Environment, Physical Planning and Public Works "Spatial Planning Development Study for the Island of Rhodes. Phase 1" (1997), "Study for the spatial implications of the Community Programmes and Policies of South Aegean" 1st (1996) and 2nd phase (1997), as well as information regarding projects and infrastructure development funded in the Regional Operation Programme (part of the 2n[d] and 3rd Community Support Framework).

1. Description of CAMP Rhodes

1.1. Area

Located in the south-eastern Aegean Sea, Rhodes is the largest island and the most important tourist resort of the Dodecanese Archipelago. The island covers a surface area of 1,394 km^2 and its coastline is 220 km long. According to the 1991 Census, the population was 100,686 inhabitants. Rhodes was one of the few islands during the 1980s and 1990s, which experienced population growth due to tourism. In spatial terms, there is a high concentration of population and economic activities at the northern part of the island, close to the town of Rhodes. Tourism is still the main economic activity of the island. Over 40% of the economically active population was employed in services (hotels, restaurants and transport). Of the remainder, 14% were employed in agriculture and 14% in commerce, 11% in the public sector, 8% in construction and 8% in manufacturing and extractive industries (in 1991). The island population at the time of the CAMP was 1% of the national population while the hotel capacity represented 15% of the corresponding national level (1990).

1.2. Main Issues Identified in CAMP Rhodes

Rhodes was experiencing:

- tourism growth accompanied with urbanisation, sprawling of development along the coasts, threatening the natural environment and cultural heritage, which are the basis for tourism development;
- increasing dependence on tourism (monoculture) while the predominant tourism development model experiences a crisis suggesting the need to broaden the tourist product;
- lack of appropriate infrastructure for waste management, water supply and energy;
- limited organisational, administrative and technical capacity at local and regional prefecture (level) in relation to the severity of the problems encountered.

1.3. Phases of CAMP Activities

CAMP Rhodes was the first pilot application of Integrated Coastal Area Management (ICAM) intervention in the Mediterranean. It was implemented in three phases:

- *Phase I (1988-1990).* This phase was implemented as a PAP/RAC pilot project in a new form of integrating collaboration of PAP/RAC and other MAP programmes with national and local institutions and experts with the aim to create the conditions for introducing and instituting a process of integrated coastal planning and management. During the first phase, preparatory activities were completed and considerable knowledge was gathered regarding the conditions and problems of local ecosystems.
- *Phase II (1991-1992).* This phase was implemented under the Coastal Area Management Programme (CAMP) under the co-ordination of PAP/RAC through which all MAP components were included equally. It was financed by the Mediterranean Trust Fund with a contribution from the Greek Government. A detailed work-plan was prepared and incorporated in the Agreement on the Coastal Area Management Programme for the Island of Rhodes. The Agreement envisaged the preparation of several sectoral activities (such as liquid waste management, monitoring of pollution, implication expected by the climatic changes, GIS training, etc.) which were then integrated under the Integrated Planning Study for the Island of Rhodes. Of the 14 activities envisaged by the Agreement, only seven witnessed significant progress. Particularly in this phase, the Blue Plan prepared development -environment scenarios illustrating the effects of the types of development on the environment. On these scenarios, it is based the development of the Integrated Planning Study for the Island of Rhodes.
- *Phase III (1993-1996).* The CAMP project for the Island of Rhodes attracted support from the European Investment Bank (EIB) and the European Union within the Mediterranean Technical Assistance Programme (METAP) framework. It was identified as one of four areas for co-operation between EIB and DG XI (Environment) of the European Commission with a focus on the preparation and promotion of a sound integrated environmental plan for Rhodes. This phase of the Programme was financed by a grant from the EIB. Within this phase, ten activities, of the total 14 in the CAMP Agreement, were selected for follow-up. The activities implemented in this phase are described in the following chapter.

1.4. Main Actors

- The Mediterranean Action Plan (MAP) participated through the:
  - MAP Co-ordinating Unit (Athens);
  - Pollution Monitoring Research Programme (MEDPOL – Athens);
  - Priority Actions Programme Regional Activity Centre (PAP/RAC – Split), as Co-ordinator;
  - Specially Protected Areas Regional Activity Centre (SPA/RAC – Tunis);
  - Blue Plan Regional Activity Centre (BP/RAC – Sophia-Antipolis);
  - The Secretariat for 100 Historic Sites in the Mediterranean Region (Marseilles).
- National authorities: the Ministry for the Environment, Physical Planning and Public Works of Greece was designated by the Greek Government as the General National Co-ordinator for the project;
- Local authorities: the Prefecture of Dodecanese and the Municipality of Rhodes were actively involved;
- National and local institutions and experts participated in the formulation, preparation and implementation of the programme

1.5. Objectives and Activities

The objectives of the programme were:

- to protect and utilise in a rational way the coastal resources on a long-term basis, determining and recommending appropriate management measures with a view to resolve the existing environment-development conflicts and establishing optimum paths for dynamic development;
- to prepare the basis for the long-term development of the Island in harmony with the receptive capacity of the environment and to create conditions for the establishment of an integrated planning and resource management system on the Island; and
- in the short term to offer, within the framework of the individual activities, solutions to urgent environment/development problems for immediate implementation.

Ten activities were identified contributing to the preparation of the Integrated Planning Study for the Island of Rhodes. The activities were:

- Implementation of the Land-Based Sources and Dumping Protocols. This activity included the establishment of an inventory of land-based sources of pollution, carried out through an appropriate survey.
- Liquid waste management. The purpose of this activity was to prepare information on the state of the environment in relation to liquid waste, consider possible alternative solutions to wastewater discharge, as well as to assess the technical, administrative and financial measures needed. Also, it aimed at identifying additional activities and proposing measures for upgrading local institutions for the management of wastewater treatment facilities.
- Pollution monitoring and control in the Coastal Region. The objective of the activity was to establish a well-organised administrative and scientific system for monitoring coastal waters. The activity was designated to include the existing programme for bathing water quality, expanding it to include the winter period and various other parameters, such as nutrients, heavy metals and petroleum hydrocarbons, taking into consideration the land-based activities on the Island.
- Water Resources Master Plan. This Master Plan was intended to study all features of water resources and define the optimum system for the exploitation and protection of resources in accordance with present and future demands. It was intended to contribute to the protection and rational utilisation of water resources.
- Environmental Sound Energy Planning. The main objective of this programme was to develop and analyse the strategies for the substitution of conventional energy sources by Renewable Energy Sources (RES) and to optimise the RES system design (determination of optimal size and type of wind generators, determination of best locations, etc.).

- Protection of Historic Settlements. The main objective of this activity was the preparation of a special study for the restoration of the Medieval Town of Rhodes and the formulation of specific guidelines.
- Training on Geographic Information Systems (GIS). The general objective of this activity was to contribute to the upgrading of local institutional and human capabilities for environmentally sound coastal management through the application of GIS. In the short term, the programme aimed at contributing to the cost-effective and efficient establishment of a permanent GIS unit.
- Environmental Impact Assessment (EIA). The objectives of this activity were to prepare an EIA for the water treatment plant and to train local experts on the application and preparation of the EIA. Furthermore, the activity aimed at preparing software for a computerised elaboration of the environmental impacts of the wastewater treatment plant and the control of its performance, and to train the users to the relevant software. Finally, it aimed at upgrading local institutional and individual capacities for the application of the EIA process and of the Decision Support System for the wastewater treatment plant.
- Integrated Planning Study (IPS) of the Island of Rhodes. The IPS intended to formulate a development strategy for the future based on the principles of sustainable development. It included the development of various scenarios on tourism development on the basis of Tourism Carrying Capacity Assessment. It has drawn from and/or provided inputs to a series of sectoral activities (Liquid Waste Management, Water Resource Management, EIA, GIS, etc.). It was intended to be the first important step for launching a process of Integrated Coastal Area Management (ICAM) in Rhodes.
- Specially Protected Areas. The main objectives of this activity were to identify areas of special interest in terms of natural ecosystems and to recommend actions for the protection and management of identified sites.

2. Achievements

2.1. Implementation of the Land-Based Sources (LBS) and Dumping Protocols

Performed activities

A survey on the land-based activities was carried out through a set of questionnaires related to liquid domestic discharges and industrial discharges containing petroleum hydrocarbons or selected substances listed in Annexes I and II of the Land-Based Sources Protocol.

Results

There was a high seasonal fluctuation of population due to tourism doubling the amount of wastewater for collection, treatment and discharge. An expansion of the existing wastewater treatment plants was needed while assuming that tourist installations can handle the seasonal increase through their own individual treatment plants. A more effective method of enforcement was needed in order to localise disconnection or illegal connections to the storm-water system, thus avoiding pollution.

Regarding industrial effluents, it was found that there was sufficient treatment and adequate discharge and that there were no sources of pollution related to mercury, cadmium, organohalogen and organophosphorus compounds or any other compound listed in the 13 common measures adopted by the Contracting Parties to the Barcelona Convention and its protocols. On the contrary, special attention was suggested to be given to the olive mills' wastewater because of the seasonal fluctuation and the absence of appropriate technology.

Proposals

On the basis of the survey, the LBS Study suggested to:

- create a well-designed monitoring network for the Island of Rhodes on the basis of all available relevant data (on this matter), giving priorities to monitoring "hot-spot" areas regarding the presence of dangerous substances in the marine water, bottom sediment and marine life;
- to better investigate the quality and quantity of solid waste production for the safe management of dumping sites and to carry out geological surveys to identify the most suitable areas for the disposal of solid waste;
- to further investigate pollution by synthetic materials and related measures of control because of the lack of data. In addition, educational programmes and/or campaigns on litter production should be organised.

2.2. Liquid Waste Management

Performed activities

The preparation of the General Plan for the Management of Wastewater began in 1993 and was completed in the second phase when the Technical Report was published.

Results

Information on the state of the environment was collected, criteria and standards, based on EU Directives and WHO/UNEP Quality Criteria, were applied to existing sources of pollution and the current method of wastewater treatment to determine possible limiting factors that could affect the selection of the optimum variant.

The Plan dealt with alternative solutions for wastewater management. Different wastewater control systems have been compared on the basis of their anticipated impact on the environment and human health, the socio-cultural aspects of their use, the expected costs and benefits, as well as management and financing. Following the comparison of the different options, the best technical solution was selected for the City of Rhodes and its surrounding tourist areas. Guidelines for solving wastewater collection, treatment and discharge problems have been proposed also for communities under 1,000 inhabitants.

Proposals

The General Plan was indispensable but inadequate for the implementation of wastewater control measures. Additional follow-up activities were considered necessary, such as:

- preparation of a Wastewater Master Plan;
- investigation (field, laboratory and office) for accurate data for the preparation of the Master Plan;
- detailed technical data on the future sewage system so as to enable the preparation of a Feasibility Study for specific systems, prepared on the basis of an adopted Master Plan. Investigation activities for the Wastewater Master Plan were envisaged to start immediately;
- a Wastewater Management Organisation should be established for the implementation of the Wastewater Master Plan, ensuring co-operation with other sectoral departments of the Prefecture, as well as financial resources to ensure follow-up.

2.3. Pollution Monitoring and Control in Rhodes Coastal Region

Performed activities

The Monitoring of Marine Pollution was carried out for a period of two years (1994-1996) under the co-ordination of the Ministry of the Environment, Physical Planning and Public Works in collaboration with local authorities. Microbiological and physico-chemical pollution has been monitored. Special laboratory equipment for training was purchased and meetings of the participating authorities were also performed.

Results

The monitoring programme demonstrated the very good quality of bathing waters regarding microbiological and physico-chemical pollution in most cases. No major industrial activities take place on the Island, which could cause chemical pollution from heavy metals or petroleum hydrocarbons. The main pollution sources affecting the coastal environment are urban effluents together with urban and agricultural run-off.

Proposals

The recommendations focused on the need to monitor systematically marine water quality in the vicinity of sewage treatment plants. Regarding pollution and control measures, it was suggested that unrestricted sewage discharges in streams should be avoided and that a rational use of fertilisers and pesticides should be promoted. A long-term measure was upgrading the operating efficiency of sewage treatment plants to include nutrient removal.

2.4. General Water Resources Master Plan

Performed activities

To reach the objectives of the General Water Resources Master Plan the assessment of the quality water resources and their availability, the assessment of water demand and uses, and the long-term plan of development, exploitation and protection of water resources were carried out. Although a high variety of data had been collected (hydroclimatic data, regime and quality of surface and groundwater, hydrogeology, natural water balance, etc.), problems have been encountered due to the lack of adequate data or to this limited reliability.

Results

On the basis of the achieved results, it was concluded that the water resources potential of the Island of Rhodes could meet all long-term water demands. The working team suggested to the decision makers to utilise of the surface water resources, which had been, till then, low exploited comparatively to their quantity and the offer in the long run. The use of surface water resources could offer sufficient and safe solutions to water supply problems for the Island of Rhodes and for the rest of Dodecanese islands facing water shortage.

Proposals

Specific proposals were made for several reservoirs and the groundwater resources of the Island. Furthermore, it was recommended the establishment of a unified Water Resources Service having as a focal constituent the expert and efficient Municipal Corporation for Water Supply and Sewerage for the monitoring and protection of water resources and the local environment. The Service should be comprised, through a flexible Body to perform strategic management and control, by representatives of out actors involved in water supply and demand, as well as by representatives of the Prefecture and local Chambers.

The project identified the following follow-up activities to be implemented as urgent priorities:

- the establishment of a hydrological data bank and the continuous recording of flows in a limited number but representative catchments, of ground water level and quality in a specific number of observatory boreholes tapping crucial aquifer layers, as well as the accurate determination of the hydraulic parameters;
- a detailed hydrogeological study of the Island, revealing areal and precise depth conditions and an artificial recharge experimental study;
- preparation of a feasibility study for a local water supply system and accompanying activities;
- a detail analysis of environmental and socio-economical impacts from the construction of the local water supply system and particularly from the Gadouras Dam.

2.5. Programme of Environmental Sound Energy Planning

Performed activities

Despite the large potential of solar and wind energy, their contribution to the total energy consumption in Rhodes was marginal being equal to 1.41% and 0.03%, respectively (1990). An optimal energy scenario was proposed based upon the "sustainable tourism development scenario", with a slower growth of tourist beds until the year 2010, sustainable employment growth and preserving the environment. Optimal locations for wind generators were identified. Problems encountered, related to the availability and the cost of reliable data and the lack of specialised personnel for the measurements.

Proposals

On the basis of the results of different actions undertaken, the working Team suggested:
- to undertake a programme of measurements for at least one year before the installation of wind energy generators at selected sites;
- to officially establish an Energy Office in charge of the promotion of activities on renewable energy sources and energy savings, media campaign, promoting the results and conclusions of the thematic activity;
- to promote on-site surveys in the hotel and industry sector followed by proposals and training courses for the conservation and rational use of energy;
- to prepare feasibility and technical studies on specific projects; and
- to propose new incentives to stimulate and promote more extensive utilisation of renewable energy sources.

2.6. Programme of Protection of Historic Settlements

Performed activities

The CAMP through this activity assisted the local authority and more specifically the Bureau of the Medieval Town of Rhodes to carry out an in-depth study (master plan) for the integrated restoration of the medieval town. The study was launched following a decision of the scientific commission concerning the master plan for the medieval town of Rhodes (in June 1994) and of the commission entrusted with the follow-up of the Town Master Plan study in 1996.

A group of experts was set up and a methodology for the formulation of a specialised urban inventory, including the digitalisation of the basic maps and the computerisation of the data fiches were carried out. A data base system was organised to perform multiple statistical analyses and a GIS for the presentation of urban analysis and alternative scenarios of urban planning. Finally, a report on the historic sites and monuments of the Island of Rhodes was drafted with a description of historic sites and monuments, problems and risks, legislation and level of protection, conservation, planning and development needs and cultural tourism. Also, electronic equipment (plotter and GIS software programme) was acquired in the framework of the technical assistance provided by MAP/EIB METAP.

During the same period (1994-1996), the Bureau of the Medieval Town of Rhodes carried out in parallel: the improvement of traffic measures, infrastructure building and road paving, elaboration of a special inventory, protection of the aesthetic value of the public spaces in the Medieval Town (i.e. from commercial shop fronts or advertisement boards), conservation and restoration of public buildings, monuments and fortifications.

Results

The most important results were the application of the urban inventory methodology, which organised descriptive data for use in analyses and formulation of master plans, through the use of electronic equipment. This methodology can be applied for elaborating master plans and development plans in other historic cities. The inventory was a valuable database of urban, historic, architectural, technical, sociological and economic data. The archive of architectural surveys, in a part of the town, can be taken as a model for the remaining, as well as for other historic cities. Finally, the collaboration between the Bureau of the Medieval Town of Rhodes and the Programme indirectly promoted also interventions like urban projects, legislation on urban planning, development of the commercial centre, enforcement of measures on vehicle circulation and parking, infrastructure projects, development of a pilot neighbourhood and restoration of monuments and fortifications.

Proposals

Although the project had a positive and considerable impact giving impetus to urban projects and interventions, further work needs to be undertaken in order to finalise the inventory and promote institutional changes towards integrated planning for the Medieval Town of Rhodes: the integrated management and restoration of the pilot neighbourhood, the organisation of the Bureau of the Medieval Town of Rhodes and the competent services for a more effective implementation of plans, restoration and development in the area.

2.7. Training Programme on Geographic Information Systems (GIS)

Performed activities

During the period 1991-1992, PAP/RAC organised preliminary and advanced training on GIS for local experts. The training programme on GIS managed to create a strong core group of local experts. While the next GIS activity was seen as follow-up, i.e. acquisition of a complete set of GIS equipment, its installation and final training of users on the installed equipment, as well as the presentation of proposal for the relevant institutional arrangement. This activity was implemented by PAP/RAC under the guidance of MAP Co-ordinating Unit and the responsible officers of EIB.

Proposals

The follow-up activities envisaged were the continuous involvement of the GIS group in a GIS programme for the Prefecture of the Dodecanese, supporting planning and management activities and the acquisition of the necessary software.

2.8. Environmental Impact Assessment (EIA)

Performed activities

The implementation of this activity was assigned to PAP/RAC under the guidance of the MAP Co-ordinating Unit and the responsible officers of EIB. The EIA for the treatment plant was prepared during the precedent MAP CAMP phase. The EIA document was prepared by national experts with the assistance and under the guidance of international experts engaged by PAP/RAC. The EIA report and the experience gained during its preparation were used for the training course on EIA, addressed to local experts, upgrading local institutional and individual capacities for the application of the EIA process/ methodology.

Results

Based on relevant data and analyses to be used as a Decision Support Tool (DST), a software programme was prepared, to allow a computerised elaboration of similar studies. Relevant staff members of the local authorities actively contributed to the successful design of the software providing the necessary data and comments. Main problems encountered were related to data and information collection.

Proposals

As follow-up activities, the working team envisaged an expansion of the DST on several items (drinking water parameters, marine sediments, etc.), the preparation of a technical study for the establishment of an analytical support centre for new wastewater treatment plants.

2.9. Integrated Planning Study for the Island of Rhodes

Performed activities

The Integrated Planning Study (IPS) for the Island of Rhodes was one of the main outputs of this CAMP Programme. It was prepared by a multidisciplinary team of specialised professionals comprising local experts from the Prefecture of the Dodecanese and the Municipality of Rhodes, national experts of the Ministry of the Environment, Physical Planning and Public Works and international experts engaged by PAP/RAC.

The IPS activity started in 1991 under MAP support engaging in a series of technical missions and consultations in Rhodes. A total of 19 sectoral reports were prepared covering sectoral and cross-sectoral environment-development issues including analysis of the prospects for the Island's sustainable development based on the environment-development scenarios developed by the Blue Plan in the previous phase, a tourist carrying capacity study, etc. Further activities were carried out within the framework of MAP's CAMP for the Island of Rhodes and support from EIB/METAP.

Results

The main achievements of the IPS activity included:

- a framework for integrated planning and a practical demonstration of the application of guidelines for Integrated Coastal Zone Management following a sequence of "problems-opportunities-options-strategy-planning activities-follow up";
- a strategy for the activities of the various "user groups" concerned and involved in the planning (area-specific), and environmental management guidelines for the national and local experts for continuos policy initiatives; and
- a focus for initiating a consultation process regarding future prospects for technical and financial assistance and project programme implementation actions from IPS.

Proposals

Follow-up actions concerned projects, detailed pre-investment studies and programme preparation. These recommendations should enable local, national and international agencies and actors to identify their role in subsequent activities and contributions to the follow-up programme.

Proposed actions included:

- preparation of an overall Integrated Planning Master Plan containing Management Plans for each of the zones, developing in more detail the Management Plan for the Environmental Conservation Zone and Priority Investment Portfolio;
- preparation of a Liquid Wastes Master Plan;
- preparation of Water Resources Feasibility Study;
- preparation of Wind Generation Systems Feasibility Study for the micro-locations in the Biosphere Reserve, data collection through the installed solarimetric equipment and pre-feasibility study for the installation of a photovoltaic system;
- preparation of detailed Environmental Impact Assessment guidelines;
- preparation of an inventory of important cultural sites and historic settlements, as well as restoration and management guidelines and a time-bound priority action plan based on the Medieval City Master Plan;
- preparation of a public education programme on sustainable development.

2.10. Specially Protected Areas

Performed activities

The activities of this project were carried out by Specially Protected Areas Regional Activity Centre (SPA/RAC) in collaboration with IUCN under the financial support of the European Investment Bank (EIB) and the European Commission, METAP Programme.

For its implementation, SPA/RAC organised field studies and missions. The first field mission, carried out in 1993, aimed at diagnosing the situation and proposing management measures for the Butterfly Valley, as well as elaborating preliminary inventory of potential protected areas. A second field study was undertaken in 1994 with the participation of a consultancy team composed of Greek consultants and IUCN experts. Finally, consultation was performed in 1995, to receive comments and reactions from local authorities regarding the sites of bio-ecological interest proposed for protection and the proposed management measures proposed in the preliminary report.

Results

On the basis of the data collected, a final report was prepared including a detailed description of the identified sites of interest, as well as guidelines for the conservation of natural and cultural heritage in Rhodes.

Proposals

As soon as the authorities of Rhodes agreed on the necessity and benefits linked to the adoption of CAMP for the Island, they should:

- establish zoning for activities and conservation;
- develop and maintain a participatory process to obtain consensus at the regional and local level;
- offer alternative or compensation for displaced or reduced activities; and
- use the existing or adopt and implement the necessary legislation.

Furthermore, CAMP should be legally adopted and implemented through the improvement of existing environmental policy for the Island and a strengthening of local administrations/institutions. Different levels of actions were needed:

- creation of an Environment Co-ordination Committee, under the responsibility of the Prefect, including all relevant departments for the implementation of environmental laws, the physical plan, the proposed regulation, etc.;
- creation from the existing relevant departments, of a planning and management team or protected area authority to deal with the conservation of nature and natural resources;
- development and implementation of a continuous survey for the marine and terrestrial environment with relevant institutions collecting scientific, ecological and socio-economic data; and
- preparation and adoption for each protected area of a specific management plan or at least a general management plan for the conservation area.

Finally, development and conservation projects would need to be identified and evaluated, feasibility studies should be prepared and funding sources identified.

3. Assessment of the Management of CAMP Rhodes

In general, the CAMP Rhodes intervention can be considered partially successful, since only seven out of 14 activities planned were completed by the end of the second phase while all the activities planned in the METAP phase were completed. The entire programme had a positive impact on the organisation of the administrative bodies and technical services at all levels.

The elaboration of detailed studies during both phases of the programme led to the preparation of a large database, useful for developing local projects. This contributed to the improvement of decision making through the establishment of a preliminary generation information system and the introduction of the long-term perspective into local decision making. Furthermore, the programme contributed to speeding up the development of key infrastructure projects by providing background information.

Sectoral co-ordination was assessed as low since various activities and reports were not planned and managed in an organised manner, but in isolation from other parallel studies. However, co-ordinated approach was improved in the Integrated Planning Study where the results from all activities were utilised and assistance to local authorities was provided in a concrete form. Integration of the environmental component was present in all activities since the beginning / the initiation of the project.

Vertical integration in administration was partially successful. Most of the activities have been carried out by a small group of experts from the Ministry of the Environment, Physical Planning and Public Works ensuring collaboration between local and national actors towards the solution of major problems. However, the project has failed to reach a very high level of integration between the various layers of government although horizontally there was a relatively good collaboration at the Prefectural and Municipal levels.

Finally, although the programme has contributed in raising awareness among local actors regarding long-term development implications and the need to consider alternative development options, there was insufficient effort to involve the local society in pursuing a long-term strategy for integrated coastal zone management. The programme have not shown an explicit endeavour to communicate the results and strengthen the social capacity towards the adoption of such a strategy.

4. Shortcomings and Strong Points of CAMP: Lessons Learned

Major problems encountered in most of the activities relate to data availability and collection. Data were not always in a homogeneous form while in some cases there was low willingness to collaborate and a tendency to produce data (in case of surveys with questionnaires) favourable for the people. Furthermore, the availability of updated data was limited while the access cost was too high for the available financial resources. In the case of direct data collection there was some times a lack of experienced and trained personnel, as for example in the case of wind data.

Even if the programmes achieved the majority of goals, the external environment did not contribute considerably so that some objectives were not achieved. The first impediment was the lack of an adequate legal framework, particularly the one concerning Spatial Planning. The second was the lack of a fully operative co-ordinating system at the Prefectural level which resulted in the prolongation of the implementation period.

At the institutional level, the administrative environmental departments demonstrated insufficient co-ordination capacities, excessive fragmentation and overlap of responsibilities, highlighting the need to upgrade and adapt the institutional structure in order to implement an integrated planning process.

However, the Integrated Planning Study put forward an Island-wide planning policy formulated on the basis of the integration of sectoral policies. The CAMP programme introduced a holistic approach for linking planning with development programming and environmental management, improving significantly the capacity of the technical services to use tools like GIS, EIA, pollution monitoring, etc. One of the main contribution of the Integrated Planning Study to the planning process in Rhodes was the focus on immediate actions setting up and articulating the components of an overall management programme towards sustainable development.

5. Follow-up

It should be noted that there were no direct follow-up activities, however, several actions have been taken on the basis of the same priorities defined in the CAMP project. The most relevant priorities for action, as defined during the implementation of the CAMP project, remained valid till today, providing the framework for the elaboration of several programmes and projects. Follow-up activities can be distinguished in two levels: implementation of thematic activities and spatial planning process.

5.1. Thematic Activities

Regarding the follow-up of priorities, as identified in the various studies (i.e. waste and water management, nature protection), it can be easily noted that water and waste management remained the priorities of the Municipalities while several projects have been completed under the support of national funding. Within this

context, the acquisition of infrastructure, particularly for water and waste (both liquid and solid) management was the highest priority for the majority of Municipalities in Rhodes, during the period 1994-2000. In several cases, it is expected to remain the central point for future action, that is the period 2000-2006 in order to complete several of the projects and promote integration.

Priorities as reflected in the proposals for the 3rd Community Support Framework (CSF)

The 3rd Community Support Framework (CSF), as evidenced at the regional level in the Regional Operational Programme, represents the main source for funding for the period 2000-2006. Each one of the 10 Municipalities of the Island of Rhodes (Rhodes, Ialissos, Petaloudes, Kamiros, Ataviros, S. Rhodes, Kallithea, Afantou, Archangelos and Lindos) has elaborated specific proposals for funding. A significant part of these proposals includes projects in respect to liquid and solid waste management and water resources management. The development of two landfill sites, one at the northern part and one at the southern part, is also included in the proposal. It should be mentioned though that the construction of these sites has been initiated in the previous period (1995-2000). Furthermore, through the Regional Operational Programmes for the prefecture of Dodecanese (2000-2006), two significant projects are also proposed: the implementation of a management system for solid waste for the whole Island of Rhodes (1,500,000,000 dr.) and the construction of a station for the collection of hazardous waste (3,000,000,000 dr.).

Water resources management is another priority. Emphasis is placed in the acquisition of infrastructure (water supply networks, networks for water transfer, flood prevention projects). The Municipality of Petaloudes has requested funding for the integrated management of drinking water with the application of modern tools and methods (600,000,000 dr.).

As indicated in the following table, the Municipality of Rhodes is expected to acquire a significant part of future funding (47%). The majority of these funds will be used for the protection of cultural heritage. The Municipality of Rhodes presents an exception since as indicated in the following table most of the Municipalities promote projects in respect to waste management.

Table 1: Percentage on resources management funding

	Requested funding (millions dr.)	**Percentage on total funding for the whole island**	**Percentage on funding for each municipality**				
			Water managem.	**Historic settlements/ monuments, etc.**	**Nature**	**Liquid waste managem.**	**Solid waste managem.**
Rhodes	45,037	47.0		28		2.2	
Ialissos	4,240		19			44	
Petaloudes	4,832					17	
Kamiros	5,350					28	
Ataviros	8,210	8.6	28				8
S. Rhodes	5,700		14	13		18	9
Kallithea	6,515				14	36	
Afantou	2,980					12	
Archangelos	5,270		8	13.3		42	
Lindos	6,007					28	
Total	**95,141**						

Several other projects are being scheduled as part of the regional plans. Some of the main priorities for actions are:

- the acquisition of infrastructure;
- environmental protection and sustainable development; and
- control of tourism development, enrichment of tourism product, diversification of activities, amelioration of services, etc.

Priorities for the period 1994-2000, as reflected in the Regional Operational Programmes, Cohesion funds (particularly the part which is for local development), Interreg II, LEADER, Sectoral Operational Programs (for Tourism, Agriculture, Environment, etc.):

For the period 1994-2000, the total funding for Public Works for the Prefecture of Dodecanese was 182,447,000,000 dr., the biggest percentage of which (107,894,000,000 dr.) was for the Island of Rhodes. Following a rough estimate, almost 27% of these funds were used for water and waste (solid and liquid) management specifically for: Construction of landfills, purchase of equipment, construction sewerage, treatment plants, and water supply systems (i.e. connection of the water supply system of the city of Rhodes and Gadoura dam), construction of flood prevention systems, irrigation systems, reservoir and a dam (in Kritina). Some other activities included the protection and enhancement of historic/traditional settlements, monuments, other areas and protection of nature (protection of biotopes, development of a Museum of Natural History in the bay with butterflies, other works in the Rodini Park). Most of the proposals for measures and projects of CAMP are still valid today.

5.2. Spatial Planning

The various thematic Studies of the CAMP Rhodes project along with the Integrated Planning Study and the methodology followed its preparation, provided valuable inputs for the preparation of the Special Spatial Development Study (SSDS) for the Island of Rhodes, which was commissioned to a Greek Consultant by the Ministry of the Environment, Public Works and Physical Planning in 1994.

The Special Spatial Development Study constitutes at present the only type of spatial planning activated at the Island level in Greece. The ultimate goal is the identification of priorities and zones of land uses and building regulations for all areas outside towns (existing Master Plans). This kind of Study is based on wider integration of economic development and protection of natural resources and ecosystems. The SSDS for the Island of Rhodes has been commissioned (it is still ongoing) before the approval of the new Law for Spatial Planning and Sustainable Development, so the Study does not conform entirely with the specifications of the new Law. For that it is not possible to proceed with the formal approval of the whole Study but only of certain parts through the use of specific tools like the Development Control Zones.

On the basis of the development scenarios prepared in the Integrated Planning Study of CAMP Rhodes, the SSDS developed three scenarios:

1. The Pro-Development Scenario (without intervention) on the assumption that the increase of hotel beds would follow the same trend of the last twenty years that is an increase of 15,000 beds every five years (110,000 in 2010). On the other hand the IPS foresaw a growth of tourist beds till 193,000 units in 2015.
2. The Controlled Development Scenario foresaw an increase of hotel beds number of 5,000 units every five years (70,000 in 2010), while the IPS foresaw a growth of tourist beds till 78,000 units in 2015.
3. The Sustainable Development Scenario foresaw that the increase of hotel beds would follow population growth trends (78,000 in 2010), which in any case reflect the hotel beds development trend for the last ten years. The IPS foresaw a growth of tourist beds till 110,000 units in 2015.

The number of hotel beds foreseen in the three scenarios of the SSDS have been calculated using the same logic adopted in the IPS, following a more “conservative” approach in favour of environmental protection. The Sustainable Development Scenario has been selected since it was found more stable than the others, since the immigration employment would remain stable, as percentage of the total employment, while the tourist expenses would increase with satisfying rate.

Some of the assumptions developed in the Studies conducted by UNEP have been used to develop the scenarios in the SSDS. For example, the assumptions and calculation made for the demands of land for tourist infrastructure, or the assumptions for the evaluation of impacts on land use due to the various options of tourist development are based on the Blue Plan Studies. Several of the thematic studies that have been conducted as part of the CAMP initiative provided significant input in the formulation of the proposals in the SSDS, for example the Study for the Specially Protected Areas has been used for the identification and delimitation of areas of high ecological value. These areas had been already identified in the initial study of UNEP.

The Special Spatial Study for the Island of Rhodes consists of four phases:

- Phase I: Description and assessment of the current state of the environment. Elaboration of three alternative options/scenarios.
- Phase II: Selection of the best scenario and its revision by all local authorities.
- Phase III: Revision of the Study by the consultant along with the Ministry of Public Works, Spatial Planning and the Environment on the basis of the comments and preparation of a new draft.
- Phase IV: Final approval by the Council for Spatial Planning and formal approval of the entire or part of the proposal.

At the moment, the second phase of the Special Spatial Study for the Island of Rhodes has been concluded. In this phase, the scenario which had been chosen has been analysed and developed in more detail. The Study has been given to all the local authorities for revision and comments. At the moment, only the Union of Local Municipalities has not provided any comments for the study. The finalisation of SSDS is expected to be concluded at the end of 2001.

Basically, the hypotheses and figures suggested by the scenario prepared during the first phase did not change but they have been elaborated in more detail. Three main axes of suggestions have been proposed:

- The areas with significant ecological value, belonging in the Natura 2000 Network, have to be protected and Specific Environmental Studies have to be conducted according to the existing legal framework.
- A Study for the northern area (the most saturated one) has been conducted at a scale 1:25,000. It is suggested to conduct a more specific study examining in more detail land-use patterns, while the proposal suggested will have to be institutionalised and to be based on the new Law for Settlement Development.
- For the eastern and south-eastern part of the island (the developing area) it is suggested to use the Zone for Control of Land Development as a tool for the implementation of the proposal.

6. Suggestions

Design

- The design of CAMPs should be based on:
  - catalytic interventions focusing on key issues and policy variables;
  - multiple activities recognising the multidimensional character of integrated management.
- CAMP programmes should consider/assess carefully the availability of financial resources for the implementation of their objectives in order not to overload local institutions or exceed their implementation capacity. However, the proposals should not be elaborated only on the basis of financial availability. In general, existing mechanisms and programmes (i.e. SMAP, Life for Third Countries) need to be considered and linked with the proposals suggested within CAMPs.
- Seeking synergies and exploiting existing opportunities with other initiatives/programmes implemented by local/national authorities favours co-operation and support by local authorities, while assuring/ promoting the implementation of follow-up activities.
- CAMP should provide a unique framework for future actions. The CAMP activities could guide and assist local and regional authorities in operational terms in preparing proposals and actions and seeking funding.

Implementation

- Actions should be implemented within the existing institutional framework in order to strengthen the commitment of local and national institutions, allow the implementation of follow-up activities and eventually the formal approval of the plans or programmes.
  On the other hand, as in the case of CAMP Rhodes, plans and proposals can and should act as a strategic framework for future action, not restricting to existing institutional settings, which as in the case of Greece and other Mediterranean countries, do not incorporated CZM principles. Planning and the institutional framework are still quite fragmented and sectorally driven.
  However, planning activities within CAMP should pursue the maximum possible links with existing institutions while using existing tools that could facilitate future implementation.
- The implementation of short-term and cost-effective demonstrative pilot projects is of crucial importance, as it can boost local support for coastal management process and offer the opportunity for

testing co-operation and co-ordination. Within this context, the promotion of demonstration projects in which CZM principles (i.e. *sectoral integration, participation,* etc.) would be fully incorporated and clearly reflected is absolutely necessary.

Participation

- A wider participation is needed in the planning process and for the implementation of the CAMP actions.
  In the case of CAMP Rhodes, as in the case of most CAMP projects, tourism is the most critical human activity. Consequently, all actors involved with tourism development (i.e. encompassing entrepreneurs, NGOs, agencies, employers) need to participate in the envisaged activities and, if possible, undertake specific responsibilities. After all, within a market economy, where the role of the state is constantly reduced, the private sector should play a leading role towards the implementation of several of the suggested proposals and projects, which aim in upgrading environmental quality, contributing to sustainable tourism development.
- Short and long-term initiatives in capacity building have to be included from the early steps of CAMP implementation for public administration and CAMP project participants, in order to prepare them for thinking and acting strategically, resolving conflicts, administering complicated projects and co-operating efficiently. Decision makers and planners tend not to regard CZM as a process. This kind of perception is facilitated by the fact that CZM coincides with studies and planning activities. However, CZM is a continuous dynamic process, which often requires from participating actors to re-examine their activities taking into account some fundamental principles (i.e. long-term sustainability, integrity, etc.). CZM often requires a new way of perceiving planning and decision making for coastal areas. Within this context capacity building could prove of significant importance.
- Promotion of awareness activities.
  The engagement of local society can have a significant influence on the successful implementation of CAMP activities. Awareness rising for environmental issues can contribute greatly towards the engagement of local society.

Information

- Data collection and information management remains a vital step during the CAMP process. Lack of credibility and availability of data could be a severe constraint. In cases where interviews with local or regional actors are scheduled or questionnaires are being sent, it is useful to inform in advance the people who will be either interviewed or asked, about the scope and the expected outcomes of the programme. This information needs to convey a clear message, a clear request or expected contribution.
- Better co-ordination among sectoral studies is needed, achieved through the establishment of a local co-ordination team.
- Organisational, technical, planning, institutional and financial issues require particular attention. In order to overcome most of the problems confronted within coastal areas, changes or improvements in respect to the organisational structure or the planning approach may be required, while the availability of financial resources will greatly determine the implementation of various proposals.

Dissemination

- Dissemination: wide dissemination of the CAMP in all phases (initiation, design, consultation, implementation, etc.) needs to be secured. Publication and wide dissemination (i.e. through conferences) of final results should be planned in advance.
- Exchange of experiences among various CAMP initiatives is an opportunity to learn from each other's experience and to diffuse the coastal management process. CAMPs can derive significant benefits from experience already gained, draw ideas by consulting other project reports or learn from other projects' failures. Within this context, seminars and workshops should also be organised.

CAMP "ISRAEL"

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1. Description of CAMP Israel

1.1. Background

In 1993, Israel submitted a proposal for a Coastal Area Management Programme (CAMP). Following a year of preliminary preparation, CAMP Israel was officially launched in November 1996 with the first meeting of the Steering Committee at which the programme was finalized. The programme was prepared in consultation with experts from Israel and MAP, including experts from the Regional Activity Centres.

About 70% of Israel's 6.4 million residents live along its 190-kilometer coastal strip. Since urban settlements, industry, energy and a large portion of tourism and transport activities are physically concentrated along Israel's coastal strip, it was realised that changes in coastal areas are likely to affect the country as a whole. Consequently, the CAMP studies in Israel related to the entire area of the country, not just to a selected coastal section as in other CAMPs.

CAMP Israel was conceived as a catalyst for new ideas and concepts which could generate changes in the policy making directions in the country. The programme had two main objectives:

- to encourage stakeholders in economic development sectors to take responsibility for the environmental impacts of their decisions and to incorporate environmental considerations in their decision-making processes (sustainable development, capacity building, economic instruments); and
- to improve the professional basis for policy making on issues not sufficiently covered in current coastal zone management (pollution control, sand reservoir, cliff stability, climate change).

The programme was implemented over a three-year period. It was oriented to the creation and promotion of the process of integrated planning and management through several interrelated activities. The activities were selected both to reflect issues of relevance to a relatively developed country and to reflect the new direction of activity as expressed in MAP Phase II. Some of the more traditional components of CAMP were not included since they have been undertaken in Israel for many years (e.g., specially protected areas, Environmental Impact Assessment – EIA). On the other hand, the programme focused on issues of acute concern in the local context, such as beach erosion and coastal sand supply which had not received attention within MAP activities to date.

The entire process encompassed eight activities, 5 MAP Centres, more than 100 experts and 23 reports. The results of the project were presented at a Final Presentation Conference in Jerusalem in May 2000.

1.2. Summary of Activities

Integrated Coastal Area Management

During CAMP, an appraisal was made of current coastal zone management in Israel. It described Israel's coastal resources, development pressures on the coastal environment, and current and proposed policies and

tools for coastal planning and management. The review focused on such sensitive issues as impact of marine structures, public access to the coast, beach and cliff protection and pollution prevention.

Management of Coastal Resources and Hazards

Three groups of activities were included within this heading, which relate to urgent coastal resource management issues:

- ***Management of Coastal Sand Resources:*** The most urgent coastal resource management issue in Israel relates to the management of coastal sediment as a national natural resource. Several offshore facilities have interfered with the longshore sediment flow, causing an accumulation of sand upstream and a loss of sediment downstream. Management of coastal sand resources requires accurate data on sand sources, their characteristics, the processes affecting sand movement, and means of nourishing eroded beaches by sand bypassing of marine structures or import of sand from more distant on- or offshore sources.
- ***Risk of Cliff Instability:*** Another coastal hazard relates to management of unstable eolian (kurkar) cliff shores along several sections of the Israeli coast. An in-depth study of the stability, dynamics, risks and environmental management of the Sharon Escarpment in the central coastal zone was conducted. The relevant issues include access to the shoreline, measures for stabilisation at cliff top and cliff toe, and safety measures. The study analysed the processes and risks of cliff retreat along the Sharon Escarpment and suggested guidelines for its management.
- ***Implications of Climate Change on the Coastal Region:*** An additional activity related to the implications of possible climate change on the coastal region of Israel for the purpose of preparing suitable management and policy responses. To implement this aim, a scientific study on present climatic characteristics of the Mediterranean coastal area of Israel and of predicted variations in temperature and precipitation was prepared.

Assessment and Control of Pollution – Focus on the Kishon River

Within the framework of CAMP, an in-depth study on pollution of the Kishon River, one of Israel's most contaminated streams and a pollution "hotspot", was conducted. The aim was to identify the major polluters and propose specific recommendations for effluent treatment before discharge.

Economic Valuation of the Mediterranean Coast

To date, insufficient attention has been paid to internalising environmental externalities in the cost-benefit evaluation of policies, projects and programmes. Within the framework of CAMP, a first attempt was made to understand pressures for coastal development in economic terms and to indicate whether economic instruments could be effective in the management of coastal resources.

Remote Sensing Support for Analysis of Coasts

Although Israel had started to use satellite imagery for environmental purposes, it required expert assistance and co-operation with well-experienced units in order to further advance this application. The Remote Sensing Support for Analysis of Coasts (RESSAC) project, co-funded by EC (EC-DGXII Environment and Climate RTD Programme – CEO Programme, ENV4-CT96-0369), implemented by five EU organisations (CTM-ERS/RAC-I, Telespazio S.p.A.-I, ARGOSS-NL, NLR-NL, Meteomer-F) and Israeli organisations (MoE – Planning Division, IOLR, GSI) investigated and tested remote sensing techniques using satellite imagery as to their ability to provide adequate data and to provide new tools for environmental planning in coastal areas.

First National Strategy for Sustainable Development

While an initial document on sustainable development had been prepared within the Israel 2020 masterplan, CAMP generated a major move towards a change in thinking, in line with the activities of the UN Commission on Sustainable Development and the Mediterranean Commission on Sustainable Development. As part of the process, experts prepared reviews of current and anticipated environmental resources and wastes. Target groups were set up for industry, energy, tourism, transportation, agriculture, the urban sector and biodiversity, and sustainable development documents were prepared for each subject.

Conservation and Sustainable Use of Biodiversity

This activity was added by the Ministry of the Environment during the course of the programme when it was felt that insufficient attention has been paid to biodiversity in light of high rates of population and economic

growth. Guidelines and recommendations were formulated to integrate development with biodiversity conservation and to rehabilitate damaged natural systems.

Social Aspects of Sustainable Development

The Ministry of the Environment also commissioned an additional study on the social aspects of sustainable development. The study related to such questions as how to harmonize between the different components of sustainable development – economy, society and the environment – and noted that this is a question of ethics, politics and environmental justice.

2. Achievement of CAMP Objectives

2.1. Solution of Environment-Development Problems at the Local Level

2.1.1. Background

From the outset, CAMP was oriented toward the national level rather than the local level. This appeared to be justified since Israel's coastline stretches only some 190 kilometres from north to south – comparable in length to local coasts in other countries. Local authorities were invited to join the process of formulating a national sustainable strategy (none joined) and were asked to participate in the final presentation conference which took place in Jerusalem on May 24-24, 2000 (several participated). Furthermore, seminars targeted at the local level were generated by CAMP which, in turn, led to increased awareness of coastal issues among decision makers on the local level.

Following is an overview of the influence of the different activities included under the CAMP Israel umbrella in pointing to solutions of environment-development problems on the local level.

2.1.2. Integrated Coastal Area Management

One of the most serious environment-development problems to confront coastal zone management in recent years has been residential and commercial development along the Mediterranean coastline. Since property values on the coastal plain are often at least 50% higher than their equivalent inland, local authorities often regard the coastal frontage as a potential economic asset to be utilised for economic benefit. Their decisions are frequently dominated by short-term financial benefits from property values and by political considerations which often run counter to long-term environmental thinking.

As a result of the rising awareness of coastal conservation issues, some of which was generated by the issues raised in CAMP-related activities, residents have begun to express dissatisfaction with the partnerships forged between local authorities and developers against their interest. In some localities, citizens have woken up in time to oppose coastal development. In others, the damage has already been done and means are being sought to rectify it, minimise it or prevent additional damage in the future.

For example, increased awareness of issues raised in CAMP (specifically the impact of marine structures on sand management) has led the residents of the municipality of Ashkelon to demand solutions to the damages caused to their coastal stretches soon after construction of a marina.

In Herzliya, where major coastal damage and significant erosion occurred following construction of a marina in 1992, dissatisfaction with the municipal administration, which favoured the marina project, was one of the causes which led to a change in administration during the last local election. The administration, at the

initiative of the new mayor, has formulated a totally different policy on coastal management which far more reflects the wishes of the local residents and seeks to achieve the goals of integrated coastal management.

Coastal management in Netanya has emerged as a vital issue as a result of a change in orientation on the part of the professional staff in the municipality. As part of this new orientation, the municipality of Netanya has commissioned a study of environmental planning policies of the coastal cliff.

In Tel Aviv, awareness has grown of the importance of the coastal strip for public benefit as urban open space. In this municipality, the previous administration offered high-quality, sea view apartments at high prices as a means of motivating the higher income brackets to remain within the inner city rather than move to suburban settlements. As sea access and sea view were obstructed from the rest of the population, citizens and environmental NGOs voiced their opposition. Their protest, backed up by wide media coverage, was one of the factors that led to a change in administration in the last local elections and to the introduction of "green-oriented" parties into the local council. The result: a freeze on new coastal developments.

Israel's non-governmental organisations, especially the Society for the Protection of Nature in Israel (SPNI) and the Israel Union for Environmental Defense (IUED), have taken a lead role in increasing public awareness of coastal conservation issues on the local level. They have obtained favourable court rulings that confirm that public access to the coast must be guaranteed and that residential construction, under the guise of "holiday apartments", negates the provisions of the Coastal Masterplan. In one court ruling, the Tel Aviv District Court ruled that owners of apartments in the Herzliya Marina project would be required to rent them to the general public for at least part of the year. As a result of such rulings, the demand and value of such properties has dropped, and pressures for development have slowed down.

In these and other cases, the damages which were underlined in such CAMP activities as integrated coastal management and management of coastal sand resources helped to raise citizen consciousness and to trigger action on the part of both the population and the city administration. The CAMP documents helped to clarify and to highlight critical issues while expanding the database on geological and geomorphologic processes – a must for better coastal management.

2.1.3. Management of Coastal Sand Resources

The CAMP activity on sand resources highlighted several urgent issues that need to be addressed in future discussions on sand resource management in Israel. As a result of the compilation of scientific information on management of sand resources, on coastal sand movement and on the natural and anthropomorphic processes affecting its accumulation and loss along the shore, plans for offshore structures and breakwaters are not easily approved. One case has seen a refusal to approve additional breakwaters in Herzliya. Discussions are also taking place between the Ports Authority and the municipality of Herzliya on the possibility of using dredged sand from the entrance channel to Ashdod Port for beach nourishment.

In light of evidence of the adverse impacts of offshore structures and in order to preserve sandy beaches for tourism and recreation, decision makers have begun to implement principles of integrated coastal management. Specifically, it has been decided that future construction of coastal structures would be prohibited unless accompanied by sand bypassing, monitoring and directives for rehabilitation based on the monitoring results. In practice, sand bypassing has been endorsed as an integral part of the expansion project for Ashdod Port. This is the first example of coastal sand management where the Ports Authority has been required to take action to bypass the trapped sand around the marine structure due to be extended.

Similarly, a freeze on the construction of new marinas on the Mediterranean coast has been proposed until long-term policy is determined. This is based on the realisation that the forecasted rise in demand for water sports which originally led to the designation of 14 coastal sites for marinas has not occurred, that adverse

impacts have been associated with existing marinas, and that open access to the shoreline has been obstructed by residential, tourist and commercial construction in the hinterland of the marinas.

2.1.4. Risk of Cliff Instability

The report generated within this CAMP activity provided essential information on the stability, dynamics, risk and environmental management of the Sharon Escarpment in the central coastal plain. While the findings of the report added significant data to the body of scientific information, some of the recommendations require further investigation and evaluation. On a practical level, the issue of cliff instability has been raised in the country's planning agencies. In one case, a request for a building permit on the Bet Yanai cliff top was refused until a clear cliff management policy had been presented in the impact assessment.

2.1.5. Implications of Climate Change

This activity helped to increase the body of scientific knowledge on climate patterns and to raise the issue for public discussion. However, in order to make this activity practical, the impact of the forecasted sea-level rise on different areas on the Mediterranean coastline should be investigated. The locations of cliffs sited in coastal sections which are critically sensitive to sea-level rise should be determined and preventative means for the future should be identified.

The calculations on predicted annual temperature and precipitation changes which were made by the experts who prepared the climate change study on behalf of CAMP have served as a basis for a study of the vulnerability and adaptation of Israel to climate change which was prepared within the framework of Israel's obligations under the UN Framework Convention on Climate Change.

2.1.6. Identification of Main Sources of Pollution on the Kishon River

This CAMP activity was a component of a wider effort to clean up this severely polluted river and to stop the indirect discharge of pollutants into the Mediterranean Sea. Years of discharge from industrial and municipal sources have had a severe impact on the river, its mouth and Haifa Bay to which it flows.

As part of an intensive effort to rehabilitate the Kishon River, the major industrial polluters have been targeted for vigorous enforcement. They have been required to abide with stringent conditions and strict timetables for effluent treatment by the end of 2001, and to stop all effluent discharge into the Kishon River by the end of 2003. All of the plants are currently upgrading their treatment systems with significant improvements already in effect. The project is in line with the shift in approach embodied in the Barcelona Convention which prohibits indirect marine pollution through intercoastal waterways.

Nevertheless, the proposed solution to the problems plaguing the Kishon River and Haifa Bay, which calls for a marine outfall to discharge the brines remaining after effluent treatment several kilometres offshore, has met with opposition from environmental NGOs and other stakeholders, particularly the fishermen of Haifa Bay and the interests operating boats along the river. Due to the complexity of the Kishon Reclamation Project, with respect to both the ecological aspect of restoring life to the river and the administrative aspect of enforcing compliance with strict effluent standards, the Ministry of the Environment initiated a process of conflict assessment in order to formulate a collaborative strategy which would gain public support. The consensus-building and conflict resolution approaches benefited from lessons learned within the framework of CAMP, and specifically as part of the activity on sustainable development.

Thirty interviews were undertaken, representing some 14 stakeholders, according to an interview protocol. An analysis of the results indicated that much of the public response to the strategy was based on a lack of trust that the proposed measures would indeed be implemented. However, if measures could be taken to assure that effluents met the required permit standards and that these standards would not cause deterioration in the marine water quality of Haifa Bay, support of major environmental NGOs for a marine outfall could be obtained.

In parallel, a report was commissioned from international consultants which analysed the concepts of Best Available Technology for pollution abatement in the industries based on the carrying capacity of the Kishon River and Haifa Bay. The experts concluded that the proposed strategic approach would be valid provided that sufficient measures were taken to ensure full compliance with the standards.

At present, the stakeholders are willing to discuss the possibility of a collaborative strategy, but are not yet convinced that compliance will be ensured by voluntary agreements. They therefore seek legal measures to back up requirements for compliance.

2.1.7. Remote Sensing Support for Analysis of Coasts (RESSAC)

The close work of all the partners in RESSAC with the Planning Department of the Ministry of the Environment provided the latter with important insights into the applicability of remote sensing to sound planning. The analysis of land-use changes over a ten-year period based on Landsat TM processing showed and quantified the dependence of such changes on urban and industrial growth around the major cities.

It was concluded that regular monitoring relying on Landsat TM should be continued along with the use of other sensors. The Ministry of the Environment has adopted this land-use change detection method and is implementing it on a national level. This will serve as an annual data source which will support decision making on national and regional levels.

2.1.8. Sustainable Development Strategy: Impact on the Local Level

CAMP provided the impetus for promoting discussion on sustainable development in Israel. Moreover, it clarified the need to promote sustainable development on the local level, with special respect to formulating Local Agenda 21s, which are now being promoted in different localities throughout the country.

To spearhead initiatives of local authorities in support of Agenda 21, the Heschel Centre for Environmental Learning and Leadership (an NGO), with the support of a charitable foundation, sent a group of ten people to a European conference for sustainable city initiatives. The Centre is currently recruiting four small to mid-sized municipalities and one local council, representing the cultural diversity of Israel, to launch Local Agenda 21 sustainability initiatives. The project, in co-operation with the Ministries of Environment and Housing and other stakeholders, will emphasise participatory democracy and land-use management. One of the components of the programme is to connect cities to consultants with expertise in different areas of sustainable development and in the development of sustainability indicators. An effort will also be made to interest the press in the plans of the participating local authorities.

Another project, still in planning stages, is expected to twin three local authorities in Israel with three in Germany, in an effort to develop sustainable development approaches within the local authority management system.

Another recent initiative will see the formulation of a Local Agenda 21 plan for Mitzpe Ramon, a local council with 5,700 residents in the arid part of Israel. Several governmental and non-governmental organisations have expressed their support for the project which will emphasise such elements as community participation, eco-tourism and environmental planning. The project will be based on a strong educational element on the assumption that by educating the public to be environmentally-conscious, this selfsame public will, in turn, vote for more environmentally-responsible representatives in future elections.

Finally, Israel's Healthy Cities Network has adopted the vision of "Health for All" and the principles of Health 21 and Local Agenda 21.

Notably, the organisers of several of these initiatives participated in the sustainable development effort within the framework of CAMP. They have acknowledged that CAMP introduced them to the theory and practice of sustainable development and especially to the consensus-building approach in which all stakeholders are involved. The plan is to expand these projects to additional cities in the long term and to create a network of Israeli cities which operate in the spirit of sustainable cities world-wide.

2.2. Improvement of Institutional Capacities of ICAM

2.2.1. Background

Coastal zone management in Israel uses the land-use planning system established under the Planning and Building Law of 1965. The foremost plan that addresses coastal zone management is the National Masterplan for the Mediterranean Coast. It is designed to control building and land-use along the coastline and to ensure public benefit and conservation of coastal resources.

A statutory committee operates at the national level of planning: the Territorial Waters Committee. The committee is responsible for approving all offshore structures. No plan or building permit regulating offshore projects may be endorsed without prior approval of this committee.

Following the review of coastal zone management in Israel, conducted within the framework of CAMP, it became clear that the current institutional framework for coastal management is inadequate in some respects. While existing institutions and legal systems have been successful in protecting the Mediterranean coastline outside urban areas, they have not succeeded in preserving urban coastal stretches from persistent and powerful development pressures, particularly for exclusive residential development. Massive pressures by both developers and municipalities for coastal sites have led to breaches of the coastal masterplan, particularly in relation to the prohibition of construction within 100 meters of the coastline.

CAMP highlighted the fact that the existing institutional framework for coastal management was a critical instrument that needed tightening. It revealed the gap between policy and practice, between regulatory instructions and compliance. Furthermore, it showed that while the institutions worked well on the macro level, they proved somewhat deficient on the micro level. Frequently, they did not detect breaches in compliance on the local level – whether installation of drainage channels or local infrastructures along the coastline.

This recognition has led to two initiatives: a proposal for a new law for the protection of the coastal environment and a proposal for the establishment of a Coastal Authority. Both suggestions have not been implemented and are facing stiff opposition from the local government which views them as an infringement of its authority.

2.2.2. Coastal Legislation

In 1998, in an effort to protect coastal resources in the face of mounting pressures for development, the Ministry of the Environment and the Israel Union for Environmental Defense and the Society for the Protection of Nature, two of the country's foremost non-governmental organisations, drafted coastal laws aimed at preserving and restoring the coastal environment and its fragile ecosystems, reducing and preventing coastal damages and establishing principles for management and sustainable development of the coastline.

The rationale behind the draft prepared by the Ministry of the Environment, which is largely declaratory in nature, is expressed in the memorandum which was distributed among government ministries: "The purpose of this bill is to establish in legislation the principles and legal framework which will ensure sustainable development of the coast, so that the public may enjoy and bequeath to future generations a coast whose value is no less than its present value. The law is expected to determine, in the clearest and most explicit manner, that Israel recognises its seashore as a public asset whose protection and conservation are of high national importance".

The companion NGO bill, submitted by a member of the Israel Parliament in 1999, sets operative procedures and directives on developing, managing and preserving the coastal environment based on the assumption that the coast is public property and that both physical and visual access to it must be ensured. The bill contains a wide definition of the concept of "coastal strip" and of permissible development on it. It calls for furthering public participation in the planning process and delineates the tools for enforcement. Furthermore, it prohibits damage and pollution of the beach and reinforces the responsibilities of the Territorial Waters Committee with regard to protection of both the land and water sides of the coastal strip. The bill is currently under consideration in Parliament.

2.2.3. Coastal Authority

The second proposal for institutional change calls for the establishment of a Coastal Authority which would be responsible for integrated coastal management, including pollution prevention. Although, the proposal by the Minister of the Environment has not been formally tabled or discussed, the need for institutional changes has been raised in different frameworks. For example, the Coastal Waters Policy Document, completed in 1999, sets out several proposals for planning and organisational changes.

At present, the Territorial Waters Committee is authorised to decide on developments on Israel's water side only. However, growing recognition of the interlinks between sea and shore, highlighted by the CAMP activities on the sand budget and cliff recession, has led to a change in thinking. Based on the understanding that changes offshore impact the coastal area and *vice versa*, and that an artificial line cannot be drawn between land and sea, proposals have been forwarded for increasing the authority of the Territorial Waters Committee to decide on land-use changes along the coastal strip in addition to its current authority with regard to offshore structures.

Furthermore, while the Territorial Waters Committee is currently composed of a small number of government representatives, it now seeks to reorient itself from an *ad-hoc* coastal engineering approach to an integrated coastal zone management approach. Proposals call for wider representation of the public and of NGOs within the Committee.

2.2.4. NGOs

In 2000, a Forum of Coastal Organisations, composed of 25 NGOs which deal with the marine and coastal environment, was established. The Forum, co-ordinated by the Society for the Protection of Nature in Israel, has played a major role in opposing development schemes along the Mediterranean coast and lobbying for coastal conservation. It has begun to publish an annual report on the state of the Mediterranean coastline which is presented to the Minister of the Environment.

2.3. Application of Tools and Techniques of ICAM

2.3.1. EIA, GIS and Remote Sensing

In Israel, two tools have been used for evaluating coastal zone development projects: EIA and GIS. Since 1983, the coastal masterplan requires EIAs on all coastal development projects unless exempted by a decision of the planning authority. While this has not always been implemented, EIAs have been prepared for marinas, port expansion, breakwaters, and tourist and hotel projects along the coastline.

The first GIS project undertaken by the Ministry of the Environment was the Mediterranean coast database, which originally produced the maps included in the National Masterplan for the Mediterranean Coast. In recent years, the Mediterranean coast database has been expanded to include information on monitoring sites and beach access, nature and landscape areas, locations of microbial and heavy metal monitoring stations, coastal land uses, and oil sensitivity.

Within the framework of the Remote Sensing Support for Analysis of Coasts (RESSAC) project within CAMP, a multidisciplinary partnership was developed which contributed to the setting up of an Earth Observation System devoted to improve knowledge and understanding of Mediterranean coastal transformations in both marine and land environments. The project relied on both existing and innovative techniques which were applied in the Mediterranean for the first time.

RESSAC provided the Planning Department of the Ministry of Environment with important insights into the applicability of remote sensing to sound planning. Today, the project is ongoing within the Ministry of the Environment which is updating the built-up area cover to the entire country, with funding from the Israel Lands Authority.

While these tools and techniques have had a positive impact, additional tools are still missing. These include market and incentive-based tools, designed to encourage stakeholders to comply with coastal management principles.

2.4. Formulation and Implementation of National Policies and Strategies

2.4.1. National Masterplan for Building, Development and Conservation

CAMP has had a significant and direct impact on the formulation of national policy. This is particularly so with regard to the Coastal Waters Policy Document and the National Masterplan for Planning and Building, both of which were prepared by the same planning consultant who was exposed to the CAMP documents.

The National Planning and Building Board, Israel's top planning authority, has incorporated sustainable development principles in many of its goals and targets. Of foremost importance is the integration of sustainable development principles into the newest masterplan, the Integrated National Masterplan for Building, Development and Conservation (NOS 35). Sustainable development principles, many formulated within the framework of CAMP, are integrated throughout the plan, especially with reference to protection of open space. These include such principles as efficient land use, improvement of urban quality of life, protection of nature, landscape and land reserves for future generations, and assurance of maximum public access to the seashore. Although the masterplan has not yet been approved as a statutory document, its principles are well established among the planning committees.

2.4.2. Coastal Waters Policy Document

Similarly, the Territorial Waters Committee has incorporated sustainable development principles in its Coastal Waters Policy Document.

In 1997, the Territorial Waters Committee initiated an integrated coastal area management approach in a policy document which was completed in May 1999. The policy stresses the importance of management of the coast and coastal waters as a primary national and public asset according to principles of sustainability. The objectives range from maximum coastal accessibility to the general public and conservation of ecological resources to development of public infrastructures when a coastal location is clearly justified and under specific conditions.

2.4.3. Sand and Cliff Management

The CAMP activity on sand resources highlighted urgent issues that need to be addressed in future policy on sand resource management in Israel. At a meeting held to discuss the results of this CAMP activity, attended by representatives of government ministries and environmental NGOs, it was concluded that a national policy for sand management was required. Attention will now be focused on the necessary legal and institutional measures to formulate and implement such a policy.

With regard to the coastal cliffs, there is a need to follow up on the geographic studies which were conducted and to formulate a policy for the coastal cliffs. The Ministry of the Environment has partnered with the Society for the Protection of Nature in Israel in an effort to prepare a policy document for the coastal cliffs and to analyse alternative policy approaches and environmental implications.

2.4.4. Sustainable Development Policy

While the sustainable development documents are not expected to become a statutory document, they should point the way to new paths and approaches which take account of driving forces, not just effects. The documents are serving as a basis for integrating sustainable development into the policies of government ministries and public and private institutions. The Ministry of the Environment, for example, has revised its policies and has incorporated the following principles: integrated management of the environment and wise use of environmental resources, prevention at source, the "polluter pays" and the "precautionary" principles, community involvement and social justice. Similarly, sustainable development principles have been incorporated in national, regional and local masterplans.

While the division of responsibility within Israel's current institutional framework is not conducive to implementing the sustainable development documents in an integrated manner, some changes in policy and strategy have already emerged. For example, in the summer of 2001, the Israel cabinet decided to launch a waste reduction and recycling programme in all government offices and affiliate bodies. The decision also relates to the minimisation and recycling of "hazardous" office waste such as used batteries, ink cartridges, paints, etc.

This initiative is a first indication of a reorientation of thinking on the national level in the direction of sustainable development. It is a first step in a "Greening Government" programme which could be followed

in the future by such initiatives as a “Green Procurement” programme and partnerships between ministries and joint ministerial statements on sustainable development initiatives.

2.4.5. NGO Documents

Non-governmental organisations have issued a series of position papers, booklets and status reports on coastal protection and on principles for sustainable development of urban shores. These include such publications as “Principles for Sustainable Development of Urban Shores” and “Marinas on the Mediterranean Coasts of Israel”, both of which were published in 1999. The papers examine existing conditions along the shoreline and hinterland, survey existing and future plans for different coastal sections, and present guidelines for protection and development. Their objective is to initiate an open and transparent planning procedure based on discussions with all stakeholders and interaction between the public, planners and decision makers.

2.5. Dissemination of Experience Contributing to Regional Policies

The sustainable development documents are currently being transformed into an abridged and reader-friendly form which would be relevant to different groups, including decision makers on the national, regional and local levels. As such, they are expected to have an impact on the formulation and implementation of policies on the regional level. An initial attempt has been made at drafting a sustainable development vision for the northern region of the country.

In the southern region which constitutes over 60% of the land area of the country but is home to only 7% of its population, active citizens joined together in 1999 to form an NGO called Sustainable Negev. Its aims include: formulation of policy and review of means to develop the Negev in the 21st century, taking account of natural resources according to the needs of present and future generations; full participation of the public in formulating and implementing the policy; and establishment of an environmental movement in the Negev which will include environmental, social and educational organisations. As a first stage, a general policy document was prepared entitled “Principles for Sustainable Development in the Negev”.

2.6. Training and Capacity Building of Local and National Experts

The Israel CAMP project was different from others since it was largely based on local experts working within local institutions. This was a deliberate decision meant to assure a continuation of the process beyond the time frame of the CAMP activity. Thus, the entire process proved to be one of ongoing training and capacity building since it was integrated into local and national systems and institutions from the outset.

While there was no specific training of local and national experts within the framework of courses, international experts were consulted during the course of the project. For example, at the beginning of the sustainable development process, Israeli experts were assisted by two experts from the Dutch government who played an important role in the development of the process.

Furthermore, the final documents were presented to international consultants who participated in the final review process. During the final presentation conference in Jerusalem, two PAP/RAC consultants presented reviews of two of the reports prepared within the framework of CAMP Israel.

With specific reference to RESSAC, Israeli experts profited from the consortium formed with international expertise. The project was conceived with the aim of demonstrating how methodologies and techniques based on satellite remote sensing could be applied and introduced to professionals in the Israel Ministry of the Environment.

2.7. Co-operation with Other Regions at the International Level

Although Israel recognises the vital value of co-operation and exchange of experience at the international level, the opportunity to actively do this has not presented itself. The exchange of experience has been limited to the production of two English booklets during the course of CAMP. Entitled “Towards Sustainable Development”, they provide background information and present the preliminary documents produced by CAMP Israel.

An abridged version of these documents was included in a special issue of *Israel Environment Bulletin*, a quarterly produced by the Israel Ministry of the Environment, which is distributed to some 3,000 subscribers

world-wide. Furthermore, the ministry's state of the environment report, *The Environment in Israel*, also published in 1998, includes a section on sustainable development that relates to the initiation of the project in Israel with the support of CAMP. The Final Integrated Report of the CAMP Israel project will be available on the Internet site of the Ministry of the Environment (www.environment.gov.il)

The RESSAC project, which was co-funded by the Environment and Climate Programme of the European Commission, was more international in nature from the start and included seminars and workshops in other countries for the purpose of discussing and disseminating the results, methodologies and procedures. The RESSAC document has been published and distributed by the Regional Activity Centre for Environment Remote Sensing (ERS/RAC) of the MAP/UNEP.

3. Follow-up Activities and Main Actors and Donors

CAMP served as a catalyst for a wide range of environmental activities by governmental and non-governmental organisations. Some of the follow-up activities have taken the form of workshops and discussions groups on specific subjects which are meant to increase public awareness and participation in coastal zone management. Others relate to the implementation of the Coastal Waters Policy Document, in general, and to the Ashdod sand bypassing decision, in particular. Without doubt, the decision to bypass sand in Ashdod will set a precedent for future planning and decision making on coastal and offshore structures.

New understanding of the severity of the problems in the Kishon "hotspot" has led to wider efforts by the Ministry of the Environment to stop the discharge of pollutants from industrial plants in the vicinity into the river and the Mediterranean Sea. Follow-up efforts encompass both regulatory efforts and conflict resolution techniques.

Although Israel does not benefit from funds provided by regional and international donor organisations, most of the activities initiated by environmental NGOs are financed by philanthropic funds earmarked for such environmental purposes as community involvement and coastal protection. With the backing of philanthropic funds, these NGOs have initiated a wide range of activities and have become central actors in this area.

One of the most important follow-up activities of CAMP was the initiation of Local Agenda 21s. Soon after the conclusion of CAMP and following a review of the sustainable development documents, a steering committee was set up to formulate and implement Local Agendas 21 in several local authorities. The steering committee included representatives of government ministries (Ministry of the Environment and Ministry of Housing), NGOs (The Heschel Center for Environmental Learning and Leadership, Haim Zippori Community Education Center, the Healthy Cities Network, M.A.A.L.A. – Business for Social Responsibility in Israel) and private funding organisations (Heinrich Böll Foundation). Other NGOs are currently seeking funds to help implement similar activities in other localities.

Agenda 21 has been translated into Hebrew and will be disseminated among the general public and decision makers in an abridged and reader-friendly form. Documents on sustainable development in different sectors are also being edited for wide distribution. Emphasis is being placed on the transformation of these documents into forms more useful for different user groups, including decision makers.

Yet another essential aftermath of the CAMP project was the realisation of the importance of developing environmental indicators. Israel is implementing several initiatives on sustainability indicators which will communicate environmental information to the public and to decision makers about the priorities for policy development and goal setting. Within the framework of a MAP/Blue Plan regional project, Israel is taking part in the development of some 130 indicators on sustainable development in the Mediterranean area. Israel is also participating in an international project on indicators initiated by the government of Greece (MEDERMIS), with researchers at the Hebrew University of Jerusalem. It has already prepared dozens of indicators with the assistance of the Central Bureau of Statistics which has set up an environmental unit to compile, collate and analyse data on the state of the environment and on environmental resources in Israel. Publication of sustainable development indicators in the Statistical Yearbook of Israel, which is available on the Internet, is expected to increase awareness of both the public and policy makers of the state of the environment and of sustainable development trends.

An initial booklet (in English) of 11 environmental indicators has been published by the Ministry of the Environment. Similarly, the Ministry's upcoming state of the environment report (in Hebrew) will largely be

based on environmental indicators. The publications will be disseminated by means of the Internet site of the Ministry of the Environment, as well.

4. Assessment of the Management of the CAMP

Each of the activities undertaken within CAMP had a value of its own and contributed to furthering the specific subject under study while, at the same time, the synergistic contribution of all activities has advanced coastal area management in Israel. The activities investigated areas of concern which were in need of more detailed consideration, and, together with existing knowledge and expertise, contributed to improving the basis for policy formulation both in the coastal area and at a national level.

On the other hand, with the exception of the sustainable development component, each activity was carried out in isolation by an individual expert or by a small group of experts. This resulted in the production of excellent documents from a scientific point of view, but did sufficiently follow up conclusions with practical recommendations. Thus, while most of the activities succeeded well in expanding or consolidating the database, they did not pay sufficient attention to management measures. The sand budget activity, for example, should have been widened to include the economic and public administration aspects in addition to the more specific research components.

Furthermore, some of the projects, in and of themselves, were not sufficient to be of use on a practical basis to Israel. Activities such as the economic valuation and the climate change study should have been carried on to make them more relevant on a practical level. In the case of the former, the results were insufficient to provide a basis for a usable new orientation. In the case of the latter, the emphasis remained on a climate change scenario without providing information on the implications for Israel's coastal zone. However, in the case of the climate change scenario, several new studies have been initiated which are based on the results of this CAMP activity.

The sustainable development activity focused special attention on co-operation among stakeholders. However, since it too was oriented toward the national policy level, it was characterised by a lack of integration and co-operation between the national and local levels. Nevertheless, the process proved to be an important catalyst for a variety of sustainable development initiatives.

Following a review of different approaches to preparing sustainable development strategies around the world, Israel found the European approach to be most fitting. Israel tried to follow the Dutch example of identifying stakeholders, creating a process of consensus building, setting goals and targets, and finding innovative ways by which progress towards them can be achieved.

Thus, an integral part of the process related to the organisation of seven target groups (industry, energy, transport, tourism, agriculture, urban sector, biodiversity) composed of a wide range of stakeholders including national government, the private sector, experts and consultants in the field, academics and NGOs. Although representatives of local government were invited to join the target groups, they declined to do so.

During the course of 1997-8, each of the target groups met on several occasions in order to prepare a preliminary sustainable development strategy for its sector using the consensus building approach. Discussions were conducted within a round table framework with the participation of all stakeholders. The preliminary documents for each sector were then presented in a special seminar held in Israel in 1998. The results were preliminary in nature and did not reflect full consensus on several critical issues. However, they did propose changes in Israel's development path.

Participation of the economic sector (e.g., representatives of the Israel Manufacturers Association, Ministry of Industry and Trade, Small Businesses Authority, Israel Electric Corporation, Oil Refineries and several industrial plants) was of the utmost importance in identifying the need for structural changes in production processes, for example. One of the foremost recommendations was for a change from end-of-pipe technologies to resource conservation and use of technologies which incorporate measures to prevent pollution and waste in production processes themselves. Following the exposure of the industrial sector to the concepts of sustainable development and other environmental management issues, the Manufacturers' Association and the Ministry of the Environment jointly established a Cleaner Production Centre in 2001.

Israel's strategic approach provided the impetus for promoting discussions on sustainable development. By harnessing local experts and stakeholders, the concept was made relevant to Israel. Each stakeholder in the

discussions was not only personally enriched by the process, but has taken steps to disseminate the information further. Several participants in the round-table discussion of each sector have continued to raise the subject in other ministries, non-governmental organisations, academic circles, industrial sectors, and public and private bodies. Stakeholders in the discussions have taken steps to disseminate the information in government ministries, non-governmental organisations, academic circles, industrial sectors and public bodies.

In general, the CAMP project showed that on a national level, individual professionals, who are highly motivated, have a strong impact on decision-making processes. In Israel, the leadership initiative for coastal area management has not come in a top-down approach from central government, nor from a bottom-up approach from the public, but rather from high-level professionals who have been exposed to the international discourse on vital issues.

This also proved to be the case with regard to the sustainable development activity. The target groups included professional planners and architects who then promoted the principles and approaches with colleagues from other ministries and as consultants to several national planning and development projects.

The Final Presentation Conference in Jerusalem provided a good opportunity to evaluate the process and the results. The conference was attended by representatives of the Ministry of the Environment and of Mediterranean Action Plan, two PAP/RAC consultants who reviewed some of the CAMP activities, government bodies, academic institutions, NGOs and the Israeli experts who prepared the reports. This was the first time in which the documents were presented as a whole both to government and non-governmental bodies as well as to the various experts.

After the presentation of the sustainable development papers, a special session was devoted to hearing the opinions of public bodies, some of whom were involved in the process of formulating the documents. While most of the bodies were impressed by the seriousness of the process, many noted that this was the first time in which they were presented with the results as a whole. Nearly all of the NGOs stressed the need for much greater public participation to a point whereby the general public would be a central player in the process, rather than only professionals or NGOs. Other participants called for greater implementation of economic tools, such as green taxes and fees. Others found that the major shortcoming of the process was the absence of participation by urban local authorities in spite of the fact that over 90% of the population in Israel lives in urban areas. Still others felt that not enough government ministries were present in the final discussions of the documents.

In general, the process revealed the need to change present trends which are not compatible with principles of sustainability and to identify sustainability indicators and appropriate institutional structures which are currently inadequate. During the course of the discussion, it was concluded that insufficient attention was paid to the relation between the strategic issues and local action and that greater efforts should have been made to integrate the activities. In addition, additional measures should have been taken to move from strategy and policy to activity and implementation.

In hindsight, it appears that the media, which has emerged as very powerful in reflecting public concerns, was not part of the process. As a result, the CAMP activities were not covered in the national, regional or local press. This may have due to the fact that the activities related to national policy issues, which do not tell a “good story”, rather than to local issues which are controversial and engender strong public opinion.

Nevertheless, despite these deficiencies in the management of the CAMP, it is generally agreed that the effort provided a good basis for continuation. Thus, although the lack of co-operation between the national and local levels was a major shortcoming, it is clear that without the conceptual work on the national level, the move to the local level today and especially to Local Agenda 21 initiatives would not have been possible.

Several of the projects consolidated existing information, an important goal in and of itself, and helped to catalyse follow-up activities. On the other hand, issues relating to institutional structure were not addressed although it is well recognised that deficient resource management may well be an institutional failure and not only a failure in understanding natural and professional aspects.

In all, there is no doubt that MAP provided the “push” necessary to continue the process of integrated coastal planning and sustainable development in Israel. The challenge now is to introduce and assimilate the concepts learned on the national government level, on the one hand, and to work along with local authorities and the general public, on the other hand.

5. Shortcomings and Strong Points of the CAMP

When reviewing CAMP Israel as a whole, several strong points are immediately evident. They include:

- The activities selected truly responded to issues which are relevant both to the reality in Israel and to the new directions in MAP Phase II. Specifically, the sustainable development component, which was a central part of the programme, proved to be of top importance in advancing Israel on this path.
- The activities contributed to furthering coastal area management at the national governmental level of decision-making.
- The studies that addressed issues of acute concern such as beach erosion and coastal sand supply played an important part in actual decisions in the field, including the decision on sand bypassing at Ashdod Port.
- The programme helped to improve the scientific basis in several vital areas, especially with regard to geological and geomorphologic processes.
- The programme created a new process in Israel. It represented the first time that policy making was participatory in nature and included the non-governmental sector. All sectors appreciated this innovative process within whose framework government talked with other stakeholders based on a consensus-building approach.
- The use of Israeli experts ensured that the process would be related to the local scene and would include follow-up activities.
- The participation of international experts associated with MAP helped to guide local experts in forging new methodologies and practices.

Over the three years of CAMP activity, several changes in coastal policy have occurred and, without doubt, some are attributable to the new directions indicated by the CAMP activities. Some activities helped herald new policies and approaches. Others had more specific or localised impacts. The contribution of still others will only be more accurately evaluated in the future following further clarification and implementation.

Perhaps the main shortcoming of the programme was the fact that insufficient attention was paid to the connection between the national and local level. Activities are currently needed to promote further public involvement in coastal area management and to advance better coastal area management at the local authority level, particularly along urban coastlines.

In addition, the sustainable development component was built as a process which led participants toward a certain point without adequate planning and provision for follow-up activities. Thus, the process built unrealistic expectations which were not implemented once the target groups completed their work and the process was stopped. There was no defined follow-up programme largely because it could not be determined at the outset what the specific output would be. Although the process did help to infiltrate the concepts of sustainable development into a variety of institutions and groups, the final documents proved to be conceptual rather than practical and operational. The documents were long and technical and could not be submitted to decision-makers as originally envisaged. In practice, the process helped to consolidate a good background document which was not strategic in nature and fell short of being operational.

In terms of such activities as the sand budget, essential preparatory work was accomplished within the CAMP programme, the subsequent reports were well accepted among professionals, and conclusions and recommendations were agreed upon. What is now needed is the establishment of an organisational framework that would manage sand as a national natural resource for the benefit of the public. However, there are no guidelines on how to do this. In this, as in other activities, there was a gap between the high quality of the professional work undertaken and the means necessary to translate concepts into action.

Another shortcoming related to the economic evaluation of the Mediterranean coast which was not sufficiently well-defined. Perhaps because this was a pioneering study, the terms of reference were not specific enough and as a result some of the conclusions should be treated with caution. Thus, although the study was interesting in its attention to the importance of the internalisation of the external effects of development, its conclusions were not useful in practical terms.

The climate change activity was suggested by the MAP co-ordinating unit rather than by professionals in Israel. Moreover, it was not continued after the first stage due to lack of funding. Thus, although the report did present important information on climate change patterns, it did not relate to the implications of climate change in terms of sea level rise nor did it relate to the identification of preventative means.

It may be concluded that those studies which were suggested by institutions outside of Israel (climate change) and those which were not well-formulated (economic evaluation) worked less well in terms of practical suggestions for the future.

Yet another shortcoming related to the problem of language. The sustainable development material was prepared in Hebrew and was distributed to a local audience. As a result, comprehensive English documentation is not available for an international audience. On the other hand, the work on coastal issues, including the sand budget, the coastal cliff and management of the coastal zone, was prepared in English to meet the requirements of CAMP. As a result, these documents were not sufficiently distributed at the local level due to the high costs of translation from English to Hebrew.

In conclusion, it now appears that at the beginning of the project in Israel, there was a tendency to overextend the potential impact of CAMP and to assume that the project would achieve practical results. The strongest point of CAMP was that it created an essential process which opened up and catalysed discussion on vital issues. Its shortcoming was that it did not succeed in formulating strategies that could be translated into action.

6. Suggestions for Improvement

The above review suggests that before new CAMPs are initiated, it is of vital importance to exchange experience about the strengths and weaknesses of CAMP projects thus far. To date, there has been little cross-fertilisation between the different CAMPS in the different Mediterranean countries. The Malta workshop will therefore provide an excellent opportunity to exchange experience in order to increase the effectiveness of new CAMP projects.

In hindsight, it is now realised that it would have been extremely advantageous to prepare concise, short, reader-friendly versions of the documents, in the native language, and to distribute them to senior management and decision makers. This appears to have been a missing link in the process which placed major emphasis on the professional and scientific quality of the studies.

Similarly, such documents should have been distributed to the media. In Israel, perhaps because the project was oriented to the national level, there was almost no media coverage of CAMP activities, and, consequently, the projects remained invisible to the public at large. It may be that in order to attract more media coverage, at least one MAP activity should be related to a local issue which is sufficiently visible and controversial to tell a good story. In Israel, this could have related to the Kishon “hotspot” which has generated major newspaper coverage as a result of health issues related to it. The CAMP activity in this area could well have been fed into the overall interest in the problems associated with the pollution of this river.

The CAMP documents were high-level professional documents. They were of interest to the scientific and professional communities, both in Israel and abroad. However, they were not effective as documents targeted at policy makers which require a different kind of writing which captures the essential points and presents them in language appropriate for high-level, decision making.

It is suggested that toward the end of the CAMP process in each country, consultations should be held between the CAMP co-ordinator and the local co-ordinator to identify follow-up activities based on the results of the project. Such a discussion would be premature at an early stage of the process when the output is as yet unknown.

In addition, it is essential to set realistic expectations and to formulate appropriate strategies based on the public administration system and socio-economic, political and cultural reality of each individual country in which CAMP is undertaken. It would be advisable for the CAMP to formulate different scenarios for activities in different countries in order to fulfil the full potential of the programme. Such scenarios would depend, for example, on how high the issue of integrated coastal management is on the political agenda. In Israel, for example, the harsh realities of the security and political situation made it unrealistic to expect that issues such as sustainable development and coastal management would succeed in rising to the top of the political level.

While the intention of CAMP may well be to reach the high level political structure in a top-down approach, this may not be applicable to all countries. In Israel, it may have been more prudent to concentrate on the senior professional level which is more long-term.

Furthermore, there is a need for external experts who would be able to evaluate the institutional structures in each specific country at the beginning of the process. Preferably, efforts should be made to twin local consultants with external experts throughout the process. Frequently, it is easier for external experts to detect, analyse and suggest changes in institutional structures. Internal consultants, who are steeped in the reality of the country, may not recognise the deficiencies of existing institutions and may not be able to point to the necessary changes.

It may be of benefit to CAMP to adopt a system for peer review such as the Environmental Performance Review which exists within the OECD. In this process, peer consultants from OECD countries work along with local consultants and compare experiences in different countries with the aim of improving environmental performance. MAP has accumulated enough experience to initiate a coastal management peer review. Following an identification of the main issues which would be covered in such a review, a procedure should be set whereby a local consultant would be paired with a MAP consultant to assess the fulfilment of integrated coastal management in different countries.

On a more practical level, the mere administrative organisation of the project proved to be a burden that should be better planned as part of the CAMP programme. In Israel, one professional with multiple demands oversaw the programme. This had both advantages and disadvantages. On the one hand, it was advantageous to entrust the Co-ordination of the project to a senior official with wide-ranging responsibilities who would be able to follow-up and to integrate among the different activities. On the other hand, the time demands of administration proved to be greater than anticipated. Therefore, it is suggested that the professional co-ordinator be provided with help in the form of a part or full-time administrative assistant. It is essential to leave Co-ordination in the hands of a professional who is well-integrated in the national system, but it is equally important to provide that person with administrative assistance.

In addition, one of the questions which has arisen at the completion of the CAMP project is how to present the results and in what language. In Israel, the activities were largely conducted in Hebrew while some of the documents and final presentations were held in English. During the final conference, visitors from abroad were provided with simultaneous translation through earphones as an alternative to proceeding in English and providing the local representatives with earphones. This was important for the benefit of the local population and appears to have been the right decision. Based on the experience in Israel, it appears to be best to present the documents and the accumulated experience in the local language in order to increase the benefit to the country as a whole. On the other hand, the problem of translation should be addressed in order to facilitate information exchange on the regional and international levels.

7. Summary

It is too early in the process to determine the tangible results of the country's strategic approach within the CAMP framework. At present, it can clearly be said that sustainable development principles are infiltrating both into the planning process, through sectorial and integrated masterplans, and to some extent into national policy and decision making as well. Thus, the original assumption that the CAMP activities would be relevant not only to the coastal area but to policy and decision-making at the national level has proved largely true.

On the one hand, Israel already possesses the professional and scientific capacity to implement integrated coastal area management and sustainable development activities in different sectors. On the other hand, it has not yet achieved internal consensus at all levels of society on policies and programmes for sustainable development nor has it developed the institutional capacity to implement the objectives of integrated coastal management.

Following are the salient results of some of the specific activities:

- The new attitude among policy makers to coastal sand management and to the management of cliff retreat was significantly influenced by the translation of scientific oceanographic and geological studies to conclusions and recommendations.
- RESSAC established a new basis for information management and has laid the foundation for the production of new land use change maps which will demonstrate likely impacts of future urbanisation using the new techniques and models.
- The calculations of predicted variations in temperature and precipitation which were made by the Israeli researchers who prepared the climate change report served as a basis for additional studies. Specifically,

these calculations were used in a study of the vulnerability and adaptation of Israel to climate change which was prepared within the framework of Israel's obligations under the UN Framework Convention on Climate Change.
- The Kishon "hotspot" study was useful for the local programme of reducing industrial effluents.
- The economic study raised questions which require further study and consideration in the future.

As a result of co-operation between government bodies and NGOs, there has been an increased awareness of environmental issues in civil society. Public awareness of coastal management issues has been critical to the coastal conservation campaign and to the formulation of policies. Over the past few years, the public has taken an active part in the struggle against development of the coastline. Through such means as litigation, protests, coastal cleanups and dissemination of information, the issue has been accorded higher priority on the national agenda.

These activities have already borne fruit. First, the issue has penetrated the media, and issues relating to coastal conservation are appearing in the daily press at a scope and frequency previously unknown. Second, government and NGOs have succeeded in mobilising support for the issue, both among decision-makers and the general public. Third, position papers have been prepared, information has been disseminated, and protests have been organised. Fourth, draft laws on coastal protection have been submitted both by the Ministry of the Environment and by the Israel Union for Environmental Defense. Fifth, a Forum of Coastal Organisations, which includes some 25 NGOs which deal with the marine and coastal environments, was established in 2000, in co-operation with the Society for the Protection of Nature in Israel. Sixth, the preservation of open spaces along the coastline emerged as a central issue in the most recent municipal elections. Staunch public support for this issue helped change the composition of municipal councils, especially in Haifa and Tel Aviv, so that today these council include a much greater representation of "greens".

CAMP Israel was conceived as a catalyst for new ideas and concepts which could generate changes in the directions of policy making in the country. While the programme itself did not implement changes, its results are helping to bring about revisions of policies toward a more environmentally integrated approach.

Without doubt, CAMP provided the impetus for promoting discussions on environment-development issues. By harnessing local experts and locally involved stakeholders, the concept of sustainable development was made relevant to Israel and allowed it to become part of the global move toward sustainable development. Several participants in the round-table discussions of each sector have continued to raise the subject in other ministries, non-governmental organisations, academic circles and public bodies.

It is highly recommended that future CAMP activities take account of some of the following recommendations:
- careful formulation of the terms of reference of each of the activities so as to make it relevant to the circumstances of the specific area;
- integration of the largest number of stakeholders in each activity;
- inclusion of national experts in each activity so as to ensure follow-up within the national and local institutions of the country;
- collaboration between external consultants and internal experts throughout the process, from formulation of goals to drafting of follow-up activities and proposals;
- provision of managerial consultancy which relates, inter alia, to desirable changes in institutional structure and to the means of implementing these changes;
- provision of concrete guidelines on means of translating concepts into practices in order to implement the goals of integrated coastal zone management;
- identification of the necessary follow-up activity to ensure implementation of the activities in the long-term;
- support to the national co-ordinators in the form of additional administrative assistance;
- provision of funds for translation purposes;
- identification of successful examples of ICAM implementation at the local level and analysis of the reasons for their success. The examples should be representative of different countries but applicable elsewhere;
- establishment of a twinning system between a good example of a local authority which has implemented ICAM successfully and another local authority in a different country;
- organisation of study tours and regional meetings to discuss the results of ICAM programmes on local, regional and national levels.

CAMP "MALTA"

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Introduction

Land and water constitute the main natural resources capital of Malta, within and by which, socio-economic development needs take place. If these resources are not managed or protected, the country consumes the natural capital on which its development is to be based. This concern applies with a special urgency in the coastal zone where the land meets the sea.

For a **small island state** like Malta, the coastal zone holds special significance in that (like all small islands) there is a relatively large ratio of coastal area to total land mass.

Insularity also introduces some added complexities which are not generally conducive to sustainability.

Over the last decade, Malta has undergone radical changes in demographic, ecological and socio-economic terms, so that its marine and coastal environment is under increasing threat from the very success that Malta has enjoyed in a booming economy. Being a small island, Malta with it's limited and fragile ecological resources can not, therefore, allow room for error in the utilisation and management of it's environment.

Conflicting demands are made for coastal and marine resource utilisation. Industrial activities, such as reverse osmosis plants, residential and recreation development, as well as other maritime activities such as bunkering and boating, compete amongst each other for the same environmental space. The high population density in general, and in particular around the coasts, the increased development required of the tourist industry and the provision of new yachting services, energy and potable water requirements put pressure on coastal resources. Such development-related uses may also increase the risk of pollution, coastal erosion, habitat loss with concurrent loss of wildlife species, and vulnerability to control environmental hazards.

For many years, many entities have, therefore, recognised the need to carry out an integrated management of coastal resources of Malta as an essential requirement when planning development and activities in this region.

The coastal Zone of Malta

The coastal zones of Malta are thus recognised as of great strategic importance. They are also home to a large percentage of citizens, either for their main residence or as a secondary residence for the summer period, a major source of income including foreign exchange earnings, a vital commercial and trade area, the location of some of Malta's most valuable habitats, and cultural monuments, and the favoured destination for the citizens leisure time.

Disordered urbanisation and infrastructure development, alone, or in combination with uncoordinated industrial, tourism-related, fishing and agricultural and recreational activities, has lead to rapid degradation of coastal habitats and resources. Mounting pressure on the coastal zone (environment) has resulted in a rapid decline in open spaces and natural sites and a lack of space to accommodate coastal activities without significant harmful effects. This depletion of limited resources of the coastal zone (including constraints of the limited physical space) is leading to increasingly frequent conflict between uses, and users, such as between nature conservation, tourism, aquaculture, and informal recreation.

Figure 1: Large scale hotels on the coastline

Given the coast's critical value and its potentials, these problems are required to be addressed.

Defining the Coastal Zone of Malta

In Malta, a common or unique definition of what constitutes a "coastal zone" does not exist as yet, but rather a number of complementary "common" definitions, each serving a different purpose. Although it is generally intuitively understood what is meant by "the coastal zone", it is difficult to place precise boundaries around it, either landward or seaward. For example, the coastal zone itself is an area considered in some European countries to extend seawards to territorial limits, while by others the edge of the continental shelf at around the 200 m depth contour is regarded as the limit. The landward boundary of the coastal zone is more vague, since for example, water masses can affect climate far inland from the sea.

Figure 2: Reverse Osmoses Plant

A general workable definition is: "*the part of the land affected by its proximity to the sea, and that part of the sea affected by its proximity to the land as the extent to which man's land-based activities have a measurable influence on water chemistry and marine ecology*". As a result of CAMP Malta, it has been, however, arrived at an appropriate definition, which is considered innovative and which can find application in small islands or for small sections of "coastal zone".

The coastal zone of Malta has been defined on the bases of the following:

- A coastal boundary for Malta has been identified[1] on ecological, physical and administrative criteria. Consequently, there are variations in the coastal widths between one area and another. The CZ boundary is significantly close to the coastline within coastal settlements and towns and is limited to the first road aligning the coast. In rural areas, however, the boundary is predominantly characterised by ecological systems and extends further inland.
- The seaward limit of 12 nautical miles has been chosen since national sovereignty extends to the territorial sea under the amendments to the planning Authority Act of 1997, which empower it to regulate "development" up to that limit.

With a total land area of approximately 315.4 km^2, the Maltese archipelago has a shoreline of about 200 km. The islands' coastal areas are generally characterised by cliffs, clay slopes and boulder rocks. About 57% of the coast is inaccessible, due to its physical features. The remaining 43%, however, is very heavily utilised for residential and economic purposes.

On the above bases, the Structure Plan will identify a land area of about 61.8 km^2 making up around 19.6% of the total land mass as "coastal zone".

Figure 3: Fish Farm

The coastal areas of Malta are used for many purposes, not only those connected with tourism, but also with ship-repair, shipbuilding, fishing and quarrying.

All of Malta's Electricity Generation plants are located on the coastline for ease of importing and handling hydrocarbon fuels, as well as for the large quantities of cooling water which are needed. The coastal zone also locates many Reverse Osmoses plants, which supply around 40% of Malta's requirements for fresh water, especially during the long hot and dry summers where water consumption is at its peek.

[1] Coastal Strategy Topic Paper (Planning Authority, 2001)

Figure 4: Coastal zone as defined in "Coastal Strategy Topic Paper" by the Planning Authority (September 2001)

Nearly all of the 1.2 million tourists who visit Malta every year are accommodated in hotels or apartments located in the coastal zone.

In a country with such a small land mass, and considering the intensity of urbanisation and density of population, the coastal areas of Malta are perhaps the last remaining area where people are able to actually experience, in an unobstructed manner the feeling of open space, where long distance views (over the sea) can be had. In effect, the sea is Malta's "wilderness and open spaces" and as such provides an added value to the coastal zone as the main pubic use for informal recreation, such as evening walks, bathing, water sport, and barbecues and picnics. This resource is already being pressured by an increase of related marine activities, e.g. aquaculture.

Coastal ecosystems, at the interface between the land and the sea, also gives rise to some of Malta's most important ecological areas both on land, as well as below the sea level. These typically comprise saline marshlands, sand dunes, rupestral communities, low lying maritime rock and transitional coastal wetlands. Uncommonly found elsewhere in the Mediterranean region, are a number of clay slopes.

The main marine coastal ecosystems also comprise a number of rapid and slow drying sediments, such as exposed sands, or sand covered with plant debris and banquette systems. The infralittoral zone, which around Malta extends to a depth of around 60 m below sea level, host algae forests and the widespread and endangered Posidonia Oceanica.

The need to conserve scarce and dwindling natural and ecological resources is thus recognised and well understood although the ever increasing pressure for "virgin" land continues to be never ending. In spite of this evident long-standing need, CAMP Malta took a fairly long time to materialise. One main reason (which continues to the present time) for this unusual delay stemmed from the extensive and deep reorganisations taking place within the governmental and other entities in Malta.

However, during the time since CAMP Malta was approved at the 8th Ordinary Meeting of the Contracting Parties to the Barcelona Convention (Antalya, 1993) and up to the formal initiation of preparations for it, many local discussions took place regarding as to what elements should be brought into the project and who would be the collaborating partners in the various activities. At the end of this period of reflection, the agreed modalities had received deep scrutiny by many. As a result, there was since the very beginning, unanimous support at all levels, for the project and its component activities.

Figure 5: View of the study area in the NW of Malta, showing in the distance, clay slopes, bolder fields and coastal cliffs

This long maturation period helped in harmonising the various activities within the project, ensuring that the outcome would be meaningful, of value, and belonging (or owned) by many entities having a responsibility or interest in the better management of the coastal zone. Even with this said, and with hindsight, team leaders and team members are still of the opinion that better and systemic efforts should have been made during this

Figure 6: Ghadira nature reserve, a reconstructed wet-land

planning phase to ensure even better harmonisation of the activities and thus of the eventual outputs.

The MAP CAMP Malta Project was officially launched during an Inception Workshop held in February 2000 (Sliema, Malta). During the workshop, amongst other matters, a draft inception report was presented and discussed. This report is the first integrated document of the project, which also defined the methodologies, tools and techniques to be applied in the project. The Project is oriented towards the sustainable management of the coast of Malta, and in particular of its north-west area, introducing and applying principles, methodologies and practices of sustainable coastal management and integrated coastal and marine areas management (ICAM).

Amongst the innovations brought for the first time into CAMP projects, here in Malta, it is worthy to note the following:

- the activity relating to Public Participation;
- the activity related to Systemic Sustainability Analyses; and
- the activity related to Tourism and Health.

The first two activities bring into practice, in the region, the principles originated in Rio and emphasised in the Tunis Declaration, and the later recommendations of the MCSD. The latter activity renewed the original focus which MAP had on health issues, such as bathing water quality, as they relate to tourism, which is a main user of the coast.

Figure 7 (above) and Figure 8 (below): The coastal zone also contains the most important historical and cultural monuments spanning a time period from around 3000 BC to the present date.

All those who participated in the project and its related activities, have commented on the extremely innovative and value adding activity relating to Systemic Sustainability Analyses, which has been carried out in a transparent and participative manner with stakeholders. Through this activity new insights into the meaning of sustainable development have been gained, which will find ever increasing application in many environmental and related fields in Malta. The CAMP for Malta also brought together various entities from the administrative, regulatory, academic and professional fields who are working together on separate activities that are, nonetheless, inter-related.

Following established PAP procedures, CAMP is implemented through selected individual themes, which eventually comprised the following activities integrated by a common policy and programme. The five thematic activities of the CAMP project are:

Figure 9: Reverse Osmoses Plant near LAPSI

1) Sustainable Coastal Management;
2) Marine Conservation Areas;
3) Integrated Water Resource Management;
4) Erosion/Desertification Control Management; and
5) Study of Environmental Health Impacts on Tourism.

Each activity focused upon carefully selected and representative areas in the north-west part of Malta.

The CAMP also includes three very important "horizontal" activities, namely:

- Systemic Sustainability Assessment;
- Data Management Activity; and
- Public Participation Activity.

Sustainable Coastal Management

The north-west part of Malta possesses a distinctive rural character and includes some of the most popular beaches and important ecological sites in the country. The objectives of sustainable coastal management are directed towards securing the implementation of coastal zone management, with the longer term aim of adopting similar plans for the whole country. The activity will also provide a strategy and an administrative framework for the sustainable development, management and protection of coastal resources. Priority areas will be identified for the setting up and implementation of management plans which will include regulatory policies for their protection, and by regulating coastal and marine development in them.

The importance of the coast as a resource will be evaluated with the added environmental and socio-economic values. It will include an analysis of the current and future development trends within the coastal zone, with a purpose of identifying user interactions as well as development pressures. This activity was lead by the Planning Authority.

Pilot Study for the Evaluation, Designation and Management of a Marine Conservation Area

This activity relates to the study of the coastal and marine environment on the north-west coast of Malta in order to formulate a comprehensive management plan leading to the evaluation and designation of the site as a Marine Conservation Area under IUCN (International Union for the Conservation of Nature) standards. The IUCN World Commission on Protected Areas defines a protected area as *"an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associate cultural resources and management through legal and other effective means".*

Marine Conservation Areas in Malta

At present, there are no marine protected areas within Maltese territory. Fishing and/or diving are restricted from certain areas but only for reasons of safety or the preservation of important wrecks and archaeological remains. The islands of Filfla, Fungus Rock in Gozo and Selmunett (St Paul's Islands) have been declared nature reserves under the Environment Protection Act, 1991.

In spite of this, the sea around them is not protected. Coastal Nature Reserves include the saline marshlands (il-Ballut in M'Xokk, is-Salini, Ghadira, and is-Simar in Xemxija) and the cliffs at Ta' Cenc and the Inland Sea in Gozo.

Marine conservation areas offer a useful tool in preserving national heritage and protecting marine and coastal ecosystems. They offer sites for research and investigation, and act as an educational resource to

make the public better understand the long-term benefits of sustainable use. Marine conservation areas are also a valuable economic resource, as with sound and careful management they may allow for eco-tourism and job creation, with the protection of biodiversity.

Figure 10: Selmunett Islands – Nature Reserve and Cultural site

The activity is intended to evaluate closely the state of the coastline and marine environment extending from Rdum Majjiesa to Ras ir-Raheb and including Golden Bay (Ir-Ramla tal-Mixquqa), Ghajn Tuffieha Bay, Gnejna Bay and Fomm ir-Rih Bay, and, therefore, closely assess the feasibility of designating this coastal zone as a Marine Conservation Area. The project will include the drawing up of a comprehensive management plan and recommendations for the sustainable management of this Marine Conservation Area, which will be implemented in order to preserve, protect and enhance the coastal and marine environment in this area. This area was selected for the present study out of the fourteen candidate sites identified in the current Structure Plan for the Maltese Islands, since it offers an excellent representative selection of major marine and coastal biotopes occurring around the Maltese Islands.

The activity will provide the necessary information on marine benthic habitats in the activity areas to formulate an idea of the state of the environment. This data, together with information on the terrestrial counterpart of the coastal zone, will be used as a basis for the proper management of the area and the preservation of the natural environment. In this way, the best methodology will be applied in an evaluation of the current activities taking place, including pollution source, tourism amenities, infrastructure installations and how best to ameliorate them. The activity is undertaken jointly by the Environment Protection Department and the Planning Authority, with the expert assistance of the Department of Biology within the University of Malta.

Integrated Water Resource Management

The north-west of Malta is one of the few remaining areas, which has not yet been completely overtaken by development. As in other Mediterranean countries, rapid economic progress during past decades has strained naturally occurring resources. Water demand makes supplies coming from the NW periodically unsuitable for potable use due to various forms of contamination, mainly due to agricultural and animal husbandry activities. An assessment of the available water resources is a basic prerequisite for their sustainable development, and to minimise, if not avoid, ecological disturbance from over-use, and to identify the most cost-effective use.

The main objective of this activity is to identify and apply the best available water exploitation technology, which will also permit for the economic and sustainable utilisation of ground water resources in conjunction with other non-conventional sources, such as storm water run-off and treated sewage effluent. The activity aims to explore the most modern environmentally friendly technologies available to the water industry, particularly those relevant to Mediterranean countries. This activity has a very strong demonstration element and will therefore offer a valuable opportunity for future training and knowledge/information transfer.

The study helps to contribute to sustainable management and protection of scarce water resources and of the ecosystem which depend upon them. The optimisation of the exploitation of conventional and non-conventional water resources, through an integrated water resources plan for the NW, will help in reducing the dependency on desalinated water. This activity is implemented by the Institute for Water Technology.

Soil Erosion/Desertification Control Management

Soil erosion can be defined as the removal of soil by the action of running water and wind. This natural process can be highly accelerated through land mismanagement including deforestation, overgrazing, over-cultivation and inappropriate farming practices.

Although no official records exist with regards to the extent of soil erosion in the Maltese Islands, the problem is affecting large tracts of agricultural land and gives rise to concern. The possible reasons for the increase of soil erosion in the Maltese Islands are many.

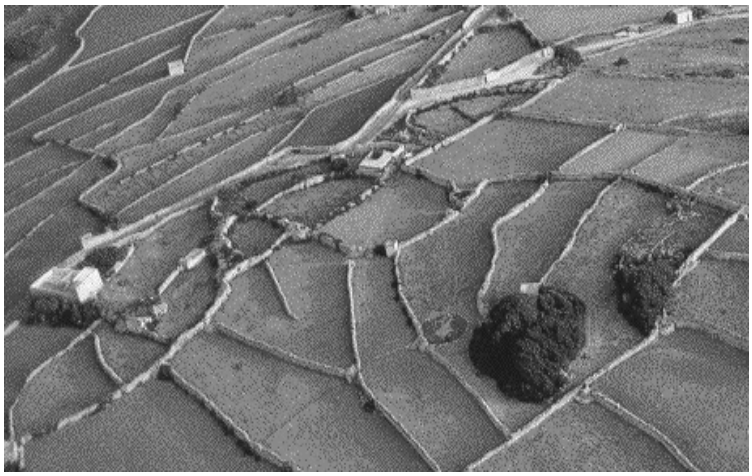

Figure 11: Rubble walls are an important control method for the combating of soil erosion

The immense pressure on land resources means that every piece of land needs to be exploited for agriculture. Much of the present agricultural landscape consists of terraced fields situated on sloping land. Rubble walls serve to retain the soil in place. However, lack of maintenance of these walls and damage sustained after heavy storms are leading to accelerated soil erosion.

Land abandonment, especially of marginal fields situated on highly sloping land, means that rubble walls are no longer maintained and soil is easily eroded, especially after heavy showers. Many fields have been turned into barren land as a result of this process.

The climate of the Maltese Islands and climate change induced phenomena presents another threat. Late summer torrential rains are devastating as they strike the land after a long dry period when soils are most susceptible to erosion.

Anthropogenic influences, such as urbanisation and tourism development, have increased the impermeable surface area of the islands with the result that runoff has become more concentrated thus aggravating the effects of rainfall-induced erosion. Soil erosion processes lead to serious environmental impacts. Soil is a precious resource that takes thousands of years to form. The removal of soil by erosion means that such a resource is lost forever. During heavy storms large amounts of soil are carried downstream into the sea where they are deposited. Gullies and rills are visual indicators of severe soil erosion. Additionally, sheet wash tends to remove the uppermost organic matter horizon resulting in the reduction of soil fertility.

Such transportation of soils also smother habitats downstream, rendering them unable to support their host communities. Where check dams are found along watercourses, soil accumulates behind such structures, decreasing their retentive capacities and aggravating flooding downstream. Dredging and re-instating these soils is a costly and time-consuming activity.

The implementation of this activity within CAMP Malta, based on the interaction between soil erosion assessment and Integrated Coastal Area Management has been recognised as one of the key prerequisites for sound soil management within coastal areas. This activity analyses soil erosion processes through focussed studies in three pilot areas in the north-west, i.e.:

- Tas-Santi valley l/o Mgarr, a typical Maltese valley;
- Burmarrad, consisting of a flat plain and gently sloping land; and
- Dingli cliffs, consisting of cliff-side and marginal fields.

The main objective of the erosion/desertification control management activity is to prepare a soil erosion/desertification control management programme which will eventually contribute to the protection, rehabilitation and better use of limited soil resources. This activity is lead by the Environment Protection Department with the assistance of the University of Malta and the Department of Agriculture and the Planning Authority.

Study of the Environmental Health Impacts on Tourism in the North-West Area of Malta

The tourism industry is one of Malta's main economic pillars. Malta boasts about its agreeable warm weather conditions, its beautiful and clear bathing waters, as well as its rich archaeological, historical and cultural heritage. This wealth must be scrupulously preserved in order to retain and maintain its magical effect.

Preserving a healthy and sustainable state of the environment is an important necessity to ensure that the tourism industry remains buoyant. While the importance of preserving the natural environment for the sake of tourism is obvious, the detrimental effect on the tourism sector by public health issues is still not yet well recognised. There is, however, a clear need for greater synergy between the tourism and public health sectors so as to sustain tourism. The benefits to be reaped by improved health from maintaining adequate environment standards in the hotel industry are obvious, i.e. a better quality tourism product, which will contribute to more sustainable tourism and increased economic development. The activity aims to study the environmental health issues that were highlighted by the local tourism sector, as well as to show the benefit of preserving public health.

The project will, first and foremost, identify key issues that are important to a tourist visiting the Mediterranean, particularly Malta. It will substantiate its findings through questionnaires to the sectors concerned, together with data gathering and analysis to corroborate the findings in these questionnaires.

- Bathing waters, which are actively sought out by many of the visitors who come specifically to enjoy the clean beaches and unpolluted seas.
- Drinking water is also a concern in the Mediterranean, especially since the region has a relatively low rainfall. The tourism industry exerts a heavy burden on water resources and water may be removed from its natural places, resulting in a threat to fragile ecosystems and endangered species.
- Food safety, especially street vended foods, which are often the source of gastro-enteritis outbreaks.
- Disease surveillance in public area, including identifying environmental and health hazards such as sewage overflow, solid waste collection and rodent control.

Thus, this activity contributes to the sustainable development of tourism in Malta, reducing and eliminating potential impacts on health of the resident population and as well as of tourists in the NW area, by protecting the environment upon which public health depends in large measure. It will ensure rational use of tourism resources, improving health conditions and increasing the level of sanitary protection and control.

Recommendations and proposals for land use and future development of tourism will be formulated while taking into consideration the relevant health aspects identified during the activity. This activity was lead by the Sub-regional Centre for Health, Environment and Tourism, within the Health Policy and Planning of the Health Division.

Horizontal Activities

The Horizontal Activities have been “discovered” to have an over-riding importance in the project. Not only do they provide a common bases for the background of the project, but in the case of CAMP Malta, they were the principal means by which the various activities communicated with each other and harmonised their programmes and work.

Systemic Sustainability Analyses

This activity is co-ordinated by a team composed of officials from the Ministry for Economic Services, Planning Authority, National Statistics Office, Economic Planning Division and the Environment Protection Department. The objectives of this activity are:

- to contribute to efforts towards a sustainable development of the whole island, and in particular of its north-west area, by preparing a set of sustainability indicators and a systemic sustainability analysis, to be made on the basis of a description and assessment of the level of sustainability by main indicators;
- to introduce and apply systemic sustainability analysis as a specific tool for sustainable management, in this case for coastal and marine areas; and
- to create inputs of interest for the activities of the Mediterranean Commission on Sustainable Development, for wide use in the Mediterranean region.

Sustainability Indicators

The word **sustainability** has probably been the most uttered word in international conferences on environment and tourism during the nineties, the roots of this concept having originating in the 1987. They generally describe a form of “development that meets the needs of current generations without compromising

the ability of future generations to meet their needs and aspirations" (WCED, 1987). Sustainable activities, therefore, refer to those activities which ensure that "quality" is maintained or improved, but not decreased.

Since quality is very subjective and differs from one person to another, yet, some form of measurement is required to assess the level of quality. The use of Sustainability Indicators has played an important role in this respect and assists communities in developing along more sustainable directions.

Societies are more familiar with economic indicators which provide an indication of the state of the economy. Thus, similarly Sustainability Indicators provide an indication as to how sustainable a particular society is and this would include economic, environmental and social indicators. Such indicators assist policy makers and the public in general to monitor progress and steer society towards a sustainable direction. Chapter 40 of the Agenda 21 document expresses support for sustainability indicators:

> *"Indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels and to contribute to the self regulating sustainability of integrated environment and development systems"* (Quarrie, 1992).

The Systemic Sustainability Approach (SSA) to identifying and measuring sustainability indicators requires the participation of key stakeholders. Therefore, at the start stakeholders should agree on the meaning of sustainable development to be adopted and the objectives of the sustainability indicators programme.

Systemic Sustainability Analysis (SSA) is an approach to identifying Sustainability Indicators (SIs) that have been designed to produce SIs in a manner which maximises their chances of producing a holistic perception of the context in question, and in an inclusive and participatory manner. This approach seeks to achieve agreement between stakeholders as to what constitutes sustainable development within their system and how this is to be measured. As a result of the various workshops held, teams identified various sustainability indicators for their respective projects.

Examples of these indicators for the coastal zone of the NW of Malta, include the following:

- percentage of abandoned land;
- amount of beach litter collected;
- density of beach users per sq. m.:
- percentage of natural coastline; and
- number of days beaches were closed because of health risks.

SSA has been introduced in Malta for the first time through the CAMP project. It is also the first time that such an approach is being adopted in any CAMP project. This approach will certainly give a new dimension to the concept of sustainable development and to Integrated Coastal Zone Management. It extends the understanding of the concept of sustainability, down the line to the specific stakeholders, rather than retaining this concept at a theoretical level. This activity was lead by the Ministry for Economic Services with the participation of the Planning Authority, the National Statistics Office, the Economic Planning Division and of the Environment Protection Department.

Data Management

The data management team was entrusted with the collation of data gathered by the other thematic activities and the provision of a common database for the whole project. Its principle task was to ensure reliability, standardisation and dissemination of the data used by, and in, the whole project.

The main difficulty, encountered in this activity was to make teams with little or no GIS (Geographic Information System) and database experiences understand and appreciate the concept of an integrated database, data sharing, data attributes, metadata and the power of integrated data analysis. For many it was a valuable learning experience. On hindsight, appointing one member from each team as a focal point for data management and date gathering would have improved the communication between the each thematic group and the Data Management Activity.

The concept of having umbrella activities, such as the data management team that encompassed all the thematic activities was positive. It not only proved beneficial in the final integration of the project, but also helped in all participants viewing the project holistically. For the Data Management Activity it facilitated the definition of the project data requirements, the overlaps and the gaps.

On a particularly positive note was the involvement in the project of members from various departments and organisations. It not only promoted the sharing of data but also of skills, disciplines and knowledge. This

approach, novel to many of the CAMP participants, will prove of great use in the future. The data management activity was executed by the Planning Authority.

Public Participation Programme

A clean, safe and healthy environment concerns everyone: bathers have an interest in clean water and unpolluted seas; the farmer in fertile soil; the consumer in good products that will not damage his or her health; industry in continuation of its production processes. The careful management of natural resources concerns everyone, everywhere.

Until recently, the protection and the management of the environmental resources of the country were considered solely the task of government. This was usually carried out by enacting laws and then enforcing them. Gradually, there has been a growing awareness that the population as a whole together with Government and all other stakeholders, are jointly responsible for the preservation of our environment. We all have a vital role to play in the quest for a high and sustainable standard and quality of life.

This "public role", however, is a relatively new phenomenon in the whole decision-making process. "Public responsibility" needs to be developed and encouraged so that it may influence the decision-making process.

The key term in this respect is **"public participation"**, a concept which introduces a variety of problems, mainly of a legal and institutional nature. These difficulties are faced by the government institutions, as well as the population in general. In the beginning, all are uncertain as to the role they have to play and the methods or modes in which these roles are to be played.

However, like in many other countries, we have over the past years learned by experience that, in many cases, this participation is an important element in democratic development, based on mutual respect and confidence. Although Public Participation in a formal context is a recent concept to Malta, an informal process was always in the background, as can be expected from a very closely knit and densely populated country.

Matters of policy, or of its implementation were routinely aired outside the restricted circles of the decision-making process, to be discussed and, in this manner the administration would obtain valuable feedback which it could (or not) take into account. Only recently has this process been recognised officially and public opinion is now taken into account in the formulation of policy, or in authorising development and other projects. In this manner, the interaction between government and citizens can be fruitful and produce strong underlying social support for joint responsibility in tackling and solving problems which affect the environment.

Public participation is actively encouraged, indeed it is now a legal requirement in many of the decision processes in Malta. Formal and fruitful public participation in Malta is linked with the greatly improved general standard of education of the Maltese, a process which has been achieved over many years. Meaningful dialogue is in turn based upon an informed population. This educational process was markedly accelerated with the introduction of computerisation and the improvements in international communication infrastructure, permitting the introduction and rapid expansion of internet facilities in most households.

Education has accelerated the process of recognising environmental problems, which in turn has increased the responsibility of citizens This is why citizens can not now evade the obligation of taking public opinion seriously. There is also a growing, broadly-based international awareness that a healthy and harmonious environment is a basic human right. This concept has far-reaching consequences, especially in the context of public participation and the legal framework within which it is to be carried out. Public participation demands information, and raises questions as to how best the public can be reached, how the information is to be given, and at what point in the process it will be "imparted".

The public participation programme of CAMP was carried out on two levels. Information was given to the general public via a number of articles in the local press, and the appearance on local media of some of the team leaders and members of the activities.

A "public participation week", which included a conference and an exhibition, was also organised. In this format, there was a two-way dialogue dring which information was given on specific requests made by the public. The conference attracted many stakeholders, whilst the exhibition was very popular with many members of the public and was also patronised by organised school visits during which many students were introduced to the concepts of, and to a better appreciation of a harmonious and balanced management of the

coastal zone of the north-west of Malta. The Minister for the Environment opened the CAMP Public Participation Conference. The exhibition was also visited by two ministers.

A more direct delivery of information through intense dialogue, also took place when team leaders and members met many categories of stakeholders during the "field work" connected with the various activities. This mode also resulted in very fruitful two-way discussions so that many farmers, agricultural co-operatives, divers, tour operators, hotel operators, doctors and counsellors, acquired a deeper understanding of the purposes of CAMP, of the processes leading to unsustainability in the area, and to the possible remedial measures, which could be employed. This improved knowledge was applied very profitably when various teams, at a later stage, met the stakeholders to formulate, discuss and agree upon acceptable and understandable sustainability indices for the areas of concern.

The Participatory Activity was lead by the Environment Protection Department with the assistance of Nature Trust. All teams participated in this part of the programme.

The Role of NGOs

The teams recognised at the outset that members of the public have great, in some cases more, knowledge about Malta's natural resources and environmental problems, than the official entities may have. This also applies to NGOs which members are particularly sensitised citizens, active in lobbying the authorities to improve their environmental priority concern. An NGO can be defined as:

- "a group of citizens organising grassroots activities to oppose a proposed project";
- "an association of scientific experts providing the government with neutral non-partisan advice on a topic"; or
- "a coalition of industry, commercial or specific representatives communicating their companies' view to the government".

Nature conservation and environmental protection NGOs in Malta range from groups with a vague and loose structure to modern, organised set-ups with national and international affiliations.

Nature Trust (Malta)

Nature Trust (Malta) – Fondazzjoni Natura, was established on the 8th of January, 1999, following the merger of three environmental organisations. These were: the Society for the Study and Conservation of Nature (SSCN), the oldest environmental group in Malta, founded in 1962; Arbor, the Society for the Protection of Trees and the Natural Environment, founded in 1989; and Verde, founded in 1996.

Nature Trust (Malta) is a Maltese environmental non-profit making organisation without any links to the government or political party affiliations. It is committed to the conservation of nature by promoting environmental awareness, managing areas of natural and scientific importance and lobbying for effective environmental legislation.

The organisation works hard in environmental education and protection by organising walks and hikes to localities of natural interest; talks, seminars, exhibitions, slide shows on environmental themes; boat trips around the Maltese archipelago and in the central Mediterranean; planting and maintenance of trees; cleanups of ecologically sensitive areas. Nature Trust also organises several educational campaigns to foster environmental awareness. At the same time, the Trust lobbies with the authorities so that the aim of the campaign is achieved. For the last two years, volunteers of Nature Trust (Malta) have actively participated in summer schools by setting up exhibitions and delivering slide shows.

Nature Trust (Malta) has initiated the "Green 2000" project, which involves the planting of hundreds of native trees at Wied Ghollieqa nature reserve, one of the last green pockets in the vicinity of Marsamxett harbour. Members of the Trust water the trees, particularly during the hot summer months, rebuild demolished rubble walls, ensure adequate protection against fires, and clean up wells. Local residents are encouraged to participate. The Trust is also planning to initiate management of another nature reserve that at Il-Ballut salt marsh at Marsaxlokk.

The organisation is participating in the CAMP project to inform the public on the development of the project, the benefits and the outcome. It has involved the public and Local Councils through public participation activities in relation to CAMP through guided walks, talks and exhibitions.

Nature Trust is CAMP's main contact point with the "public", i.e. people or organisations who do not represent the government. Their non affiliation and independence serve to ensure and demonstrate a correct and ethical conduct of the project.

Achievements of the Aims and Objectives of the CAMP

Influence of the CAMP to the Solution of Priority Environment-Development Problems

As may be appreciated, CAMP Malta has arrived in its end phases but as yet still requires considerable inter agency and stakeholder negotiations to conclude it. Much still needs to be done in harmonising the various activities and their outcome, so as to arrive at a truly integrated management plan. It is, however, possible, even at this stage, to draw some tentative opinions as to its undoubted achievements and successes and to some problems that have been encountered; together with some indications as to their possible resolution.

In Malta, protection in the coastal zone is provided through two main legal processes, namely, the Development Planning Act and related Structure Plan for the Maltese Islands enacted in 1992, as well as the Environment Protection Act of 1991 recently updated as the Environment Protection Act of 2001.

The CAMP Project seeks to enhance and to integrate the previously fragmented initiatives and efforts at coastal zone management in Malta. For this purpose, the Environment Protection Department, the Planning Authority, Water Services Corporation, Department of Agriculture, University of Malta, Department of Health, Central Office of Statistics, Economic Planning Services are active participants in the implementation of this project. PAP/RAC, RAC/SPA (Specially protected areas), BP/RAC (Blue Plan) and the WHO Euro Office are the non-local participants of the Malta CAMP Project.

Institutional Building

When the Legal instruments regulating development and environmental protection were enacted, the entities entrusted with their implementation tended to work separately and in an uncoordinated manner. The CAMP has served to co-ordinate actions by focusing on a project of mutual interest and value. There is, in addition, a general consensus amongst those who have participated that progress in controlling and minimising the impact of human activities in the coastal zone can best be achieved by an integrated management approach, if sustainable development is to be achieved without further serious degradation of the natural and cultural environments. We believe that there is only one really effective way of dealing with the use of the coast. This is by means of an national plan carried out by trained people who understand the economic, urban, tourist, agricultural, conservation and other demands on the coast.

There is consensus amongst the Malta Participants that the Institutional Building aspect of CAMP has been successfully implemented. It is envisaged that such co-operative management could be formalised for the specific purposes of Integrated Coastal Area Management, by the setting up of an *ad-hoc* "Coastal Resources Board".

As a result of the collaboration between these participating entities, there has already been much valuable input into the "Coastal Strategy Topic Paper", which has been prepared by the Planning Authority. In its turn this document will serve as input into the revision of the Malta Structure Plan which contains a number of policies that call for the protection of the coastal environment and the need to prepare a coastal management plan.

Application of Tools and Techniques of ICAM

In Malta, there already existed a good and sound bases for integrated planning. The participants recognise that the respective consultants engaged through the project have through their advise and suggestions, refined local skills by the introduction of more specific knowledge and techniques. Although all the consultants provided a very high degree of professional input, particular reference needs to be made to the very important contribution made by the consultants engaged for the Systemic Sustainability Analyses (SSA) activity.

Dissemination and Exchange of Experiences, Information

The team leaders and participants acknowledge that they have received new insights into Integrated Coastal Zone Management and in many other areas, such as the development of sustainability indices. This transfer of information and experiences was achieved through formal workshops in specific subjects such as Systemic Sustainability Analyses, and Public Participation and Integrated Resource Management. The other method was through interaction with the many consultants engaged for the project, as well as through the Regional Activity Centres of MAP participating in the project.

Figure 12: Development on the Coastal Zone (Top LHS: 17th Century development, Middle: late 1960's tourist accommodation, Bottom: "Beach room" development)

At the local level, the main methodology adopted for the exchange of information and experiences amongst the team members was through one to one meetings and informal communications. It is recognised that this particular method could only succeed in such particular circumstances, which ensure near daily meetings of the participants. Such an informal system would in all probability not work in bigger countries.

The Activity teams in turn hope to assist the Regional Activity Centres in their future work in connection with other CAMPs in the region.

Comments on the Implementation of the CAMP

The following generic comments are being made so that they may assist in the smoother implementation of other CAMP projects. They reflect the experiences accumulated here in Malta up to this point in time when we are approaching the concluding and integrating phase of the CAMP Malta. *Due to the local specificities, it is recognised that some of the comments could reflect local conditions and would not be repeatable elsewhere.*

As a general comment, all team leaders and participants, have realised that the original estimates of the input required of them to be put into the project was a gross underestimate of that which was in effect required. The project generated so much interest that to do justice to the project brief, it was involuntarily and unconsciously interpreted in a more wider and deeper sense than that originally anticipated or indeed intended. Some participants had in effect to devote nearly all of their time, especially during the crucial data gathering phases to the project.

Recommendation: It is recommended that team leaders (at least) should be engaged to the project on the bases of a requirement to a full-time commitment.

Another point which was not initially realised at all, concerned the time and other resources needed by each team so as to enable them to interact with the other teams in order to harmonise their activities, methodologies and activity management, so as to ensure final harmony with the aims of the CAMP.

The work programme for CAMP-Malta introduced a number of workshops that had a marked positive outcome in terms of bringing the different agencies together. This led to the exchange of ideas, as well as to a forum for catching up on each activity's progress. They improved working relations not just within the participating teams, but also within the separate participating agencies, which in the long term, will prove beneficial even after CAMP. These "additional commitments" unavoidably disrupted and affected many time schedules not only in CAMP but also in the day to day normal duties of the participating members.

Recommendation: It would have been ideal to identify the schedule of workshops with a timetable of target dates, etc. when such activities are to be held, in advance, with the team members. In the original proposals we had not envisaged so many number of hours on CAMP workshops, especially meetings required to

harmonise and co-ordinate the internal conduct of the CAMP, and this created a conflict with the other work we had to carry out within our own individual agencies.

Another difficulty arose with one of the project activities, which was bound by an implementation contract, which had different timeframes to those of the other activities. Whilst this team accomplished in an excellent manner its commitments, it eventually found difficulties making an input into, and in harmonising with, the rest of the other teams, since notionally the team was wound up.

Recommendation: There should be the same contract submitted to all activities in CAMP which should start and finish at the same time.

Recommendation: There should be a very clear definition of what is expected from every activity in the outset of the CAMP with no "surprise" additional reports sprung upon the participants at later stages.

It was also felt that if these matters should be given attention during the initial planning of the CAMP, a better project could be designed. Participants also feel that harmonisation of the activities should be built into the project at the design stage of the various activities, and not at the end of the project.

Recommendation: It would be more effective to integrate the activities at the stage when the Terms of Reference were being set out. This needs to be carried out together with the team members themselves. This would have helped to integrate the work, as well as identify important areas of interest, from the start. This could have integrated the objectives of each activity better. It would also have proved useful in terms of identifying the human and other resources needed and the actual number available to work on the project.

Team members also wish to have better access rights to the consultants of the other teams. The possibility for this to be affected should be written into the project's and the consultant's documents, Terms of Reference and contracts.

Recommendation: Consultants for reference during the activities should be assigned to all activities and should be easily available and accessible.

With respect to the Systemic Sustainability Analysis (SSA) activity, having an individual SSA team member for each activity proved to be effective, as most targets could be reached. The workshops proved to be useful in both introducing the concept of sustainability indicators, as well as having public participation and the initial stages of decision making.

The idea of a separate Data Management Activity also proved to be effective in providing for a common database collected and used by each individual activity.

Recommendation: It is recommended that there should be one representative from each activity sitting and participating in the work and deliberations of each other team.

The response generated from the general public was deemed to be weak or unsatisfactory. No specific reasons exist, but perhaps the public in Malta is subjected to (and fatigued by) intensive pressures from the media on a wide variety of topics.

Although the participants have experience in conducting simple publicity campaigns, they recognise that this aspect of the CAMP needs a professional input from experienced personnel.

Recommendation: The public participation exercise should be contracted to communications professionals, and relevant provision for resources should be provided for this. An appropriate contract should be formulated outlining the required program to be implemented under the guidance and responsibility of the CAMP participants. This activity team should contain one member from each of the other activities.

Recommendation: It is also recommended that the public participation activity should work particularly closely with the Systemic and Prospective Sustainability Analyses (SSPA) team since we believe that they have very similar objectives in facilitating the necessary exchanges between teams, stakeholders and the general public.

It is also important to recognise that although projects are designed with a defined starting and finishing date, the reality of their implementation demands that some flexibility in the established time frames be introduced. Difficulties, however, arise because the financing mechanisms are rather inflexible.

Recommendation: It is recommended that a mechanism be identified whereby project funds can be "set aside" so as to allow for some flexibility in the timing of CAMP activities.

"Pleasant" Experiences

Some of the "pleasant" experiences should also be noted. These were:

- Good interdepartmental collaboration and work – wonderful experience acknowledged by all participants and stakeholders. The learning experience of working with stakeholders and involving them was unique. This will ensure closer ties so that future work will be more profitable.
- The Systemic Sustainability Analyses (SSA) activity was particularity interesting and the way the workshops were held was innovative and interesting.

Systemic Sustainability Analyses Team

The team members wish to make specific references to the Systemic Sustainability Analyses (SSA) activity, now renamed The Systemic and Prospective Sustainability Analysis (SPSA) activity, which they feel has been a very important and (for CAMP and for Malta) timely initiative.

Although sustainable development has characterised environmental discourse since the 90's, apart from the academic arguments on the subject, there seems (at least locally) to have been little application to real life situations. Indeed, prior to the implementation of this activity, no local initiatives had been taken up in an attempt to put into practice this concept. In this regard, a lot of work has been carried out by this team, as lead by its consultants, to remedy the situation and to formulate Sustainability Indicators (SIs).

The purpose of SIs is to provide a measure of the level of sustainability and whether sustainability-oriented initiatives are giving results. The Systemic and Prospective Sustainability Analysis (SPSA) activity in Malta is a first time ever for CAMP projects.

This approach to identifying indicators had caught the interest of Blue Plan and the CAMP Malta Project was used for the first time ever application of this approach, particularly since the approach seeks to involve all stakeholders and is also a very effective tool for projecting future situations. This activity has therefore been designed to produce SIs in a manner which maximises their chances of producing a holistic perception of initiatives of various types, in an *inclusive and participatory* manner.

The main tasks undertaken within this team were the following:

- identification and agreement on the system, the stakeholders and the main sustainability indicators;
- participatory (with the involvement of stakeholders) development of the Systemic Sustainability Analysis (SSA) with description and assessment of the system by main indicators; and
- provision of inputs to final Project documents and post project activities (level of sustainability, critical points, future activities toward sustainability).

The main objectives of this activity were:

- to contribute to efforts towards a sustainable development of the island, and in particular of its north-west area by preparing a set of Sustainability Indicators and a Systemic Sustainability Analysis, to be made on the primary basis of a description and assessment of the level of sustainability by consideration of the main indicators and the process which generated them;
- to introduce and apply the Systemic Sustainability Analysis as a specific tool for empowering sustainable management, in this case coastal and marine areas;
- to contribute to the preparation of comprehensive integrated final Project documents, by presenting significant analysis; and
- to create inputs of interest for the programme and activities of the Mediterranean Commission on Sustainable Development.

A main achievement of the Systemic and Prospective Sustainability Analysis (SPSA) has been that it has served as a vehicle which has brought the various thematic groups together and was indeed one of the few occasions where all teams met and discussed their individual projects and problems. This project introduced the dimension of sustainable development to the thematic projects through the formulation of Sustainability Indicators (SIs) and through an assessment of what these indicate in terms of potential future scenarios.

The prospective dimension of the SPSA has been important in extending the use of SIs from simply indicators of the current situation to indicators of possible future scenarios. In this way, they have been transformed into a planning tool to determine what policies need to be adopted and which actions are to be

implemented to achieve the desired scenario. This we believe was a main reason why the activity caught the attention of all those who participated in it.

The SPSA exercise has also offered its proponents an opportunity to test the approach and identify what elements worked and which did not work as expected in the context of the Maltese situation. This instigated some changes to the approach, particularly the involvement of stakeholders from the project conception stage so as to encourage ownership of the project from an early stage. This is particularly relevant since stakeholders must play a crucial role in directing (steering through suitable policy) the indicators towards sustainable levels.

The Malta experience on the SPSA will also give direction to Blue Plan in its efforts to spread this approach to other Mediterranean countries, in line with the recommendations of the Mediterranean Commission on Sustainable Development. Blue Plan is currently working with Lebanon on a similar initiative and we are very keen to see if the lessons learned from the Malta project will be useful in designing even more successful projects in the future.

Shortcomings and Strong Points

As pointed out elsewhere it often seemed that time required to be devoted to certain tasks, necessary to provide input to other groups, or to meet stakeholders was allocated out of "charity". As an example, the time allocated to the SPSA workshops, which subsequently proved to be vital to the eventual success of CAMP, when teams met and discussed various issues was seen as a burden by many and often participation was low.

With regard to the SPSA it was healthy to see the participation of the various stakeholders and their discussion of sustainable development and SIs. It was also positive to see sectors which do not usually meet discussing common concerns, e.g. tourism and agriculture. Another positive aspect emerged during the workshop discussions where teams would discuss issues in a systemic and integrated manner and together seek common solutions.

Suggestions for Improvement

The following are some additional suggestions to be taken up to improve any future CAMP activities:

- ensure that heads of the agencies involved are kept abreast of what is going on and informed regularly of the progress achieved;
- with regard to the SPSA activity, it is important to entrench the activity as main component of the CAMP, and to involve stakeholders during the formulation of the project proposal.

Description of Follow-up (Post Project) Activities

As has been stated earlier, CAMP Malta is in the final stages of its completion, where all the individual activity's recommendations will be harmonised and synergised so as to produce an environmentally sustainable and integrated coastal areas management plan. Although at this point of writing, no definitive follow-up activities have been drawn up, the following would seem to be the most indicative as to the future activities.

Having said that it is note worthy to record that one of the activities, that dealing with Marine Conservation Areas has already secured continuity by virtue of funding through a SMAP project brokered by RAC/SPA as a lead agency. In a similar manner it is expected that there will be a considerable multiplier effect from the CAMP activities. All these initiatives are to be considered in a more long-term view, as one of the steps in a longer chain of actions.

National Commission for Sustainable Development

A National Commission for Sustainable Development (NCSD) for Malta is to be set up in terms of the new Environment Protection Act passed by parliament in September of 2001. It is envisaged that the work on sustainability carried out by the groups will be carried forward through the workings of this commission. The

CAMP experiences will also be of value to the commission. It is also worth noting that several CAMP participants have been nominated to be members of the commission.

Publications

A number of publications describing the work and findings of the various thematic activities are proposed. These will describe in sufficient detail and clarity the methodologies employed, so that the activities can be repeated by others.

Extension of CAMP

It is anticipated that the CAMP could be repeated for the south-east of Malta, and for the adjoining island of Gozo.

Detailing of Specific Matters

It is also anticipated that detailed management plans will be prepared for specific areas, so as to deal with unsustainable practices identified by CAMP. Other plans will be prepared to maintain or improve sustainability in existing satisfactory areas.

Specifically identified Management plans will be developed in sufficient detail as to the required human, financial and other resources which will be required for their implementation. They will thus form project implementation proposals, which will be attractive to a variety of funding agencies.

Administrative Measures

One possible administrative measure, which will be examined, will be the creation of a Coastal Area Resources Management Board. This could periodically examine the state of the coastal zone, and it could also serve as a clearing house for expert advise and opinion on development or other uses in the coastal zone. It will also foster links and co-ordination between respective government agencies and other interested stakeholders.

Priority areas will be identified for the setting up and implementation of management plans, which will include the regulatory policies for their protection. Further studies also need to be carried out, for example, a National Stormwater Masterplan, to recommend a holistic approach and tangible projects to tackle the problems identified in that area.

The Integrated Water Resource Management activity has a very strong demonstration element and will, therefore, offer a valuable opportunity for future training and knowledge/information transfer. The Institute of Water Technology is in a position to assess requirements in the neighbouring countries and arrange for training, if so requested.

Further studies are also indicated in connection with the North West Local Plan. A Strategic Environmental Assessment Plan needs to be undertaken in order to identify policy gaps that need to be addressed by a coastal management plan.

During the duration of the CAMP, one very important aspect of coastal use came to the public attention and caused considerable controversy. This relates to the emerging industry of aquaculture. The present CAMP will incorporate a mini-study of the environmental and sustainability aspects of this new industry.

Finally, one must point out that the adverse hydrological and environmental effects of quarrying in the region. These have not been adequately assessed and can also be considered as a study on its own which needs immediate attention. Re-instatement of the quarry/quarries in that region are of considerable priority and must be intelligently designed and executed so as the original geo-morphological and environmental characteristics of the valley systems can be re-established as much as possible.

It is also thought necessary to design effectively aquifer protection systems. The present state of groundwater quality is a reflection and consequence of the environmental state of the overlying environment. The same can be said in respect of the ecological implications, such as biodiversity, existing in the habitats which depend on the water percolating out from ground water reserves.

CAMP "SYRIA"

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Ministry of State for Environmental Affairs

Introduction

The Government of the Syrian Arab Republic proposed the Syrian coastal region for a pilot project, which was implemented by the Priority Actions Programme Regional Activity Centre (PAP/RAC) of UNEP's Mediterranean Action Plan (MAP) within the frame of its priority action "Integrated Planning and Management of Mediterranean Coastal Areas". Following this proposal, PAP/RAC launched in 1989 the preparation of the Preliminary Study of the **Integrated Plan for the Syrian Coastal Region,** which was the first phase of the Syrian Coastal Area Management Programme (CAMP).

The main objectives of the Study, which was conducted from 1989 to1990, were:

- to indicate the natural, economic, social and cultural resources of the Syrian coastal region, and to bring into focus the existing problems and conflicts with regard to their use;
- to indicate the type of pressures in the coastal region, illustrating that most of the pressures were concentrated in the coastal zone, which is up to 15 km in depth from the shoreline;
- to outline the opportunities and constraints of an environmentally sustainable pattern of regional growth and development; and
- to suggest immediate and long-term measures in conformity with integrated planning concepts.

The Coastal Resources Management Plan (CRMP) is one of the outputs of the Syrian CAMP, which was carried out over the period 1991-1992 by MAP, and considered as the second phase of the Syrian CAMP.

The immediate objectives of the Syrian CRMP were:

- to prepare an action plan for the coastal zone and shoreline area resources management taking into consideration the involvement of suitable policies, proposals, and recommendations, aiming to develop and protect the natural, environmental and human resources;
- to train the national and local experts in applying the methodology of integrated planning and management;
- to recommend forms of implementing the relevant legal instruments and existing institutional arrangement;
- to contribute to the creation of favourable conditions for introducing and adopting the modern tools and techniques of coastal zone management; and
- to identify the proposed land use for the coastal region.

The relevant studies had been prepared by the following Syrian institutions in close co-operation with PAP/RAC:

- Ministry of State for Environmental Affairs (MSEA);
- State Planning Commission (SPC);
- Ministry of Housing and Utilities (MOHU);
- Ministry of Irrigation (MOI);
- Ministry of Agriculture and Agrarian Reform (MOAAR);
- Ministry of Tourism (MOT);
- Ministry of Culture (MOC);
- General Organisation of Remote Sensing (GORS);

- Governorates of Lattakia and Tartous;
- Municipalities of Jableh and Banias; and
- Damascus and Tishreen University.

Integrated Plan for the Syrian Coastal Region

The Preliminary Study of the Integrated Plan for the Syrian Coastal Region, which was the first phase of CAMP, has shown that in this comparatively developed area, serious environmental and development problems can be expected in the future, unless major activities are undertaken to alter the course of ongoing processes and secure an environmentally sound development of the region.

In the first part of the Study, a special attention is paid to the analysis of environmental impact of development. Due to the growing concentration of people and activities in the coastal zone and the increasing disparities between that area and other areas of the region, the coastal region, being a fragile ecosystem, has been facing the growing environmental problems, threatening to destroy the very basis of its development: the soil, the water, and the sea. Many of development and environmental problems have resulted from institutional drawbacks, insufficient co-ordination and integration of activities at various institutional levels.

There were many constraints to integrated planning in the Syrian coastal region, such as:
- the lack of regional planning experience in Syria and in the coastal region, as well;
- the lack of vertical and horizontal co-ordination between the national and urban plans, and among many concerned sectors;
- the inadequate statistical base;
- limited experience of planners in the region; and
- the lack of appropriately sophisticated tools and techniques for integrated planning.

In the second part of the Study, projections of the region's possible development paths were presented. Two options for the future have been chosen and developed:
- the continuation of existing trends; and
- the option based on a moderate growth of major development policy measures to be implemented.

According to the first option, not only a very rapid growth of the population should be expected, but also its concentration in the coastal area of the region, which will cause deterioration of the environment and, ultimately, massive degradation of the physical basis of development. The second option suggested a moderate development along with a balanced distribution of the population throughout the region and the utilisation of its natural advantages. Since the latter will not be implemented haphazardly, some initiatives are suggested which, if taken, can lead to a more balanced development in the future. The Study showed clearly that the preparation of the Integrated Coastal Area Management (ICAM) of the Syrian coastal region was a logical step forward to implementing an acceptable option for the future development as a framework for the activities to guide development actions in a desired direction.

The process of integrated planning is an action-oriented process. Its main concern is focused on the most crucial problems of the planning area identified in the initial stages of planning, that is through the Preliminary Study, in this particular case. The Study has provided a comprehensive insight into the problems of the coastal region, while the Plan should concentrate on the most important ones, such as:
- location of population, economic activities and urban growth;
- creation of a balanced economic structure;

- rational use of infrastructure and construction of missing infrastructure facilities;
- protection and enhancement of the environment, and particularly special ecosystems and protected areas; and
- building institutional, legal and administrative framework to secure the achievement of planned goals and objectives.

Measures of Immediate Action

The majority of these measures are addressed to an efficient management, and to protection and rational use of resources. The measures were divided in two groups:

- ***Urgent measures,*** the aim of which is to stop the processes, which are most harmful to the environment in the coastal region; and
- ***Follow-up activities*** to be carried out in the interim period, which are meant to be an input for the Integrated Plan for the Syrian Coastal Region, and to secure a long-term, environmentally sound development of the region.

The urgent measures include as follows:

- determining the protected coastal strip and forbidding any construction in it, except for structures under special procedures;
- starting the action to prepare a protection-management plan for the coastal zone resources;
- improving the control over illegal construction;
- determining the areas around water springs and accumulation lakes for strict protection and preventing any activity in those areas which may generate pollution of fresh-water resources;
- enforcing monitoring of the water quality and setting up a monitoring network for the chemical pollution in water and edible marine organisms;
- preparing an oil spillage contingency plan and creating necessary conditions for the plan implementation;
- stopping the wetland drying; and
- stopping the sand extraction in the area of the dune chain south of Lattakia and Wadi Qandeel.

The follow-up activities include the implementation of the following measures:

- Legal and administrative measures
  - Set up fiscal measures to discourage further irrational use of water, increase of water services fees, and improve the maintenance of water supply network and facilities;
  - Set up restrictive standards for issuing buildings permits in the areas of intensive agricultural production;
  - Apply and follow up the Mediterranean Environmental Quality Criteria adopted by the Syrian Government within the framework of the Barcelona Convention;
  - Prepare a legal basis for establishing specially protected areas and, simultaneously, prepare a proposal for the protection of specially selected zones of the coastal region;
  - Set up a legal basis for the application of Environmental Impact Assessment (EIA) for all major projects; and
  - Provide a legal basis to secure that a reasonable large section of the coastline, the land and the sea area are reserved for conservation and sustainable development respecting the environment.
- Institutional measures
  - Set up the institutional framework on the regional and Governorates level for the introducing of the integrated regional planning process and the preparation of the integrated regional plan;
  - Set up the institutional framework for an environmental management at regional and Governorates levels;
  - Study the ability to establish “Development Bank” as a mean of mobilising private saving and capital for future investment in tourism, manufacturing and agriculture;
  - Introduce legal, administrative, fiscal and other measures to encourage the development of hinterland areas; and
  - Provide an administrative and organisational framework for large-scale rehabilitation and reconstruction of historic monuments and sites.
- Planning measures
  - Prepare a study on the impact of wastewater on fresh-water resources;

- Re-examine some plans of future tourism development;
- Re-examine the proposed designs of the Lattakia and Tartous wastewater treatment plants projects;
- Prepare wastewater treatment and disposal projects for other coastal cities, taking into account the wastewater reuse for irrigation;
- Study the impact of solid waste dumping sites on water resources;
- Develop information and educational programmes on environmental issues, particularly for students;
- Prepare a study on the problems of soil erosion in the region;
- Prepare a development/environment scenario (together with PAP/RAC and the Blue Plan Regional Activity Centre (BP/RAC) at the regional level;
- Enhance the monitoring capabilities of the central laboratory in Lattakia, and update the coastal water pollution maps; and
- Prepare a study on the impacts of the expected climatic change.

Coastal Resources Management Plan (CRMP)

The Plan recommended appropriate management measures, particularly in the domain of land and sea use and the protection of the most valuable resources and areas of the coastal zone, aiming to contribute to the mitigation of the existing environmental conflicts and to setting up paths for a future dynamic development. The main expected benefit of the Plan was to help save the endangered resources from irreparable degradation and to enable their controlled exploitation.

Description of Study Area

The coastal region of Syria covers only 2% of the national territory and accommodates 11% of the country's population. It is transitional in character, linking the Mediterranean Sea with arid zones of the interior Syria and the Arab world. The predominant physical feature of the entire region is its "Mediterraneanty" although the coastline is only 183 km long.

The development process has shaped the regional space and its environment in the following way:

- ***The mountainous area*** north-east of Lattakia and the entire area of mountains are characterised by the population drain and by insufficiently developed economic activities, traditional agriculture and some tourism. For the time being, there are no conspicuous environmental problems.
- ***The hilly area*** is mostly agriculture-dependent, characterised by a comparatively high population density and medium-intensity environmental problems (population of water resources).
- ***The coastal plain*** is an area of concentrated population and activities, particularly between the cities of Lattakia and Tartous, which is faced with considerable environmental problems. Should the existing trends persist, this area will soon reach the point of saturation.

Almost all vital regional resources (water, agricultural land, activities, infrastructure, large urban settlements, as well as natural and cultural assets) are located in the comparatively narrow coastal zone. One of the recommendations of the study was to prepare a plan, which would regulate the management of the environmental and functional properties of the coastline of Syria.

Major Development and Environmental Issues

1. Population

The main characteristics related to the population in the coastal zone were the following:

- high population growth in the region; and
- population concentration in the coastal zone.

It was expected that the population in the coastal zone would go up to about 800,000 inhabitants in the year 2000, and that really happened at that time.

2. Economic activities

Although the coastal region is covering only 2% of the national territory and contributing with 11% in the total population of Syria, it brings as much as 12% of the national wealth.

Agriculture is still the backbone of the coastal region economy with the production being mostly based on irrigated crops, mainly citrus and vegetables.

Heavy industry, power supply and ports serve needs much bigger than those in the region: oil refinery in Banias with 6 million tons/year or 50% of the national production, oil-fired power plant south of Banias making 20% of the country's installed capacity, and Tartous cement factory with 2 million tons/year or 50% of the national production.

Manufacturing sector is experiencing considerable problems and its development has been less successful. Lattakia is an undisputed focal point of manufacturing activities (e.g. wood factory, electronic motors factory, textile factory, gypsum factory, etc.).

3. Environmental problems generated by the concentration of population and economic activities in the coastal zone

- Heavy pressure of population on the cities have caused housing deficiency, which interim stimulated the sprawl of illegal housing in sub-urban areas, and devastation of very fertile agricultural land.
- The rapid process of concentration of people in coastal urban centres had not been matched by the construction of appropriate infrastructure facilities.
- Fishing with explosive and sand extraction is the most arrogant example of the overexploitation of natural resources.
- Over pumping of water resources has caused the intrusion of saline water into coastal aquifers.
- In response to the increasing demand of jobs, the newly opened enterprises and tourist accommodation tend to this disregard to the environment.
- In an attempt to provide more food to sustain the rapidly growing population, some forest areas have been cleared and turned into cultivated land provoking soil erosion processes. To the same end, pesticides and fertilisers have been heavily and non-selectively used.

Also, it can be stated that inadequate land-use policy is partly to blame for illegal housing. Land expropriation is an instrument lacking efficiency, since it didn't put the land into the allocated function having it to the use of former owners. The effects of urban growth on the use of natural resources and the state of environment are manifold, but we are here pointing out the loss of agricultural land in the vicinity of cities to residential purposes, as one of the most serious problems. The demand for new housing is a necessity, but the settlements system can be improved to cope with it and to become more balanced alleviating the population pressure on the largest cities and, ultimately, securing a more rational use of the most precious coastal resource – the land.

Achievements of Aims and Objectives of CAMP, the Use of the Results and Proposals at National and Local Level

- CAMP was oriented towards the local authorities and concerned institutions enabling them to join in the process of formulating a National Environmental Action Plan (NEAP) and strategies by offering methodology and procedures fit with requirements of the coastal zone.
- The project was very useful in drawing attention of officials and decision makers towards environment of the region.

- As one of the main results of implementing the Syrian CAMP, also from the institutional point of view, a decision was taken to establish environmental Directorates in the coastal basin to manage and implement the result of CAMP objectives on the ground. These Directorates are located in Lattakia and Tartous, two major cities in the coastal zone. The main task of these Directorates is the implementation of CAMP recommendations and mainly the Coastal Resources Management Plan (CRMP), throughout monitoring and controlling activities, which are distributed in the region in co-operation with the related sectors in order to implement the CAMP recommendations, and to take urgent measures to stop any violation on the marine and coastal environment. The Ministry of State for Environmental Affairs (MSEA) has to play the role of co-ordinator and to follow up implementation of CAMP recommendations, and to execute its tasks regarding the Presidential Decree No. 11 concerning the creation of General Commission for Environmental Affairs (GCEA).
- The proposed land-use map, which resulted from the CAMP study, was used as the main source of regulatory instruments for planning the development activities in the region, which need environmental permission from the MSEA. For that reason, many training courses were conducted for the staff on the implementation of the Environmental Impact Assessment (EIA) procedures.
- Capacity building and training courses were conducted in the field of Geographic Information System (GIS) for an integrated team composed of experts from the Ministry of Local Administration, Governorates, General Organisations of Remote Sensing (GORS), Ministry of Tourism, Ministry of Culture, and Ministry of State of Environmental Affairs (MSEA), which were sharing in using of data and information related to Coastal Area Management Project (on-the-job training).
- An EIA unit was created in the MSEA, and short- and medium-term training courses were conducted (inside and outside the country) for capacity building of the staff on two levels:
  - national level, which included representatives from concerning sectors in the country; and
  - local level, which included a number of staff from the MSEA and its directorates in the coastal region.

The Ministry of Local Administration through coastal Governorates and Municipalities are sharing the MSEA in controlling such activities affecting the environment through checking up the constraints and conditions from environmental point of view; an Environmental Protection Department has been created in each Governorate (Lattakia and Tartous).

- A training course was conducted in the field of using the Decision Support System (DSS) as a tool to implement the recommendations of CAMP.
- Following the Syrian CAMP study, an initiative was carried out to conduct a similar study in the region of Damascus basin by the national experts who had gained experience in CAMP Syria.
- An industrial zone was created in Lattakia and Tartous, two major cities in the coastal region, regarding the land-use map, which resulted from the Syrian CAMP study.
- A groundwater pollution potential map, which was produced in CAMP project, provided an evaluation tool for the ranking of the pollution potential of different areas; it helped in the early screening of land-use activities and prioritises protection. This map will constitute a good planning and management tool to help recognise the places where certain activities pose a higher risk. The map is very well to use for preventive purposes through the prioritisation of areas where groundwater protection is critical. It can be used to identify areas where special attention, or protection efforts, are required. Depending on this map, a committee for identifying the protected zone for the most important drinking water source in the coastal zone (Al-Sin Spring), was formed.
- The Government paid attention to the protection of natural resources in the coastal area, especially the sand dune, and a decision was made to:
  - stop extraction and excavation of the beach sand for constructions; and
  - identify alternative sources of sand quarries.

  To that end, a special committee was formed in co-operation with the General Establishment for Geology and Mineral Resources. Many locations for proposed quarries were identified in order to use sand in constructions, but the sand dune was considered as a sensitive and protected area.
- The Government stressed the importance of a monitoring programme for marine environment, and a capacity building in this field was conducted for the concerned sectors dealing with this issue.
- The environmental laboratory in Lattakia Directorate was established in order to implement the monitoring programme for marine environment.
- As the main result of the CAMP, the Ministry of Local Administration decided to build a wastewater treatment plant in both Lattakia and Tartous, the major cities in the coastal region, and the construction

of these Wastewater Treatment Plants (WWTP) was launched. Another two WWTPs to be located in Banias and Jableh are in the last stage of designing study, and it will be transferred to the execution stage as soon as possible.

- Due to considerable suffering from mismanagement and disposal of solid waste in the coastal area, two studies were conducted for integrated solid waste management in Lattakia, Tartous, and Banias.
- From the regional co-operation point of view, an integrated coastal management study is being conducted between Jbeil (Lebanon) and Lattakia (Syria), financed by the EU under the MEDA Short and Medium Term Priority Environmental Action Programme (SMAP). Its goals are to develop and introduce an integrated coastal management plan in the project area. The objectives of this project are:
  - to introduce a Geographic Information System (GIS) as a decision-making tool for coastal zone planning;
  - to promote key elements of an integrated coastal management plan through designing and implementing demonstrative actions relating to solid waste management, wastewater treatment, tourism and valorisation of small-to-medium size industries;
  - to provide an economic assessment for the replication of sustainable demonstrative actions along the coast; and
  - to build the capacity of concerned public authorities and local communities in sustainable coastal management.

The Activities Implemented in the Syrian Coastal Area after CAMP

The Ministry of State of Environmental Affairs (MSEA) has been focusing intensively on the protection of the marine environment due to its great significance from the economic and perspectives point of view. The following technical surveys and studies were conducted as a result of the Syrian CAMP study in close co-operation with MAP:

- **The Integrated Coastal Area Management (ICAM)**: the main objective was to identify the proposed land-use maps using GIS with projection of 2010.
- In co-operation with MED-POL, the **National Monitoring Programme for Marine Environment** was conducted, in co-operation with marine research centre and other Syrian agencies. The preparation for the third phase of this programme started in 1998, taking into account the study of marine pollution trend monitoring, the national and international criteria compliance monitoring, and the application of an analytical quality monitoring system.
- Implication study of the **Effects of Climate Changes on the Syrian Coastal Zone**: this study contained the prediction vision of expected potential impacts of the proposed climate changes resulting from the rise of temperature and sea level.
- **Coastal Resources Management Plan (CRMP)**: the long-term objective of this activity is identical with the goal of the general MAP CAMP programme, that is, to secure the protection, rational use and dynamic development of coastal resources of Syria, namely the sea, the coastal strip and beaches, the agricultural land and water resources, and to identify zones of exceptional natural values, which need to be protected.
- The technical study on **Sea Pollution from Land-Based Sources**: in co-operation with MED-POL, a study was conducted to determine most of the sea pollution resources, which were caused by economic and service activities. The study also suggested a number of solutions to alleviate the pollution from such sources.
- **The future planning for the Syrian coastal region**: this study, which was laid down in co-operation with the Blue Plan Regional Activity Centre (BP/RAC), included the preparation of development and environment scenarios for the Syrian coast, indicating the relationship between all kinds of development and environment activities, as follows:
  - the effect of tourist development on the environment;
  - the effect of agricultural development on the environment; and
  - the effect of transportation sector development on the environment.
- Development of the **National System for the Preparedness for and Response to Accidental Marine Pollution in the Syrian Arab Republic**.
- **Protection of the Ports of Banias and Tartous against Oil Pollution.**

- Historical site protection proposal project: as the most visible part of the cultural heritage left by past generations to the present and future ones, historical settlements, sites and monuments are considered as an integral part of the physical environment. Although relatively small, the coastal zone of Syria is rich with remains of many past periods, which proved their active role in the ancient and medieval Mediterranean civilisations.

  First to be mentioned are the remains of the ancient Phoenician Kingdom: Ugarit (near Lattakia) and Amrit (near Tartous). A meaningful evidence of the continuous strategic and economic significance of the coastal zone is the fact that out of 9 locations or areas of major importance distinguished in the coastal region 4 areas recognised with historical importance had been proposed, taking into account several criteria, as historical sites protected areas (monuments). They are:
  - Iben Hani foreland (Ugarit);
  - Al-Marqab citadel;
  - Salah Eddin citadel; and
  - Arwad island.

  However, this proposal has not been implemented as the Centre for 100 Historic Sites was new established in that time.

  The protected areas identified in the Syrian coastal zone are:
  - Om Al-Toyour;
  - Wadi Qandeel; and
  - White cliffs in the north of Lattakia.

No doubt, the Syrian CAMP has fulfilled its objectives, especially in capacity building at the local level, and contributed to development of many activities.

Assessment of the Management of the CAMP

A multi-technical national team for CAMP study in the Syrian coastal region was composed of experts from all related sectors in order to enable them to share in integrated environmental planning. During their work, the team members closely co-operated with each other, each of them became a focal point of the Ministry of State of Environmental Affairs (MSEA), and some of them became decision makers in their sector.

Proposals for short, medium and long-term procedures have been laid down in order to implement the plans and recommendations of CAMP study, but there is still a need for donors' support. Since big financial means are needed for implementing the proposals, the support of regional and international donors is indispensable.

Lessons Learned

- The integrated plan of the Syrian coastal region is just a part of the integrated planning process, and is not a "panacea" for the problems mentioned. It is just one among the important tools, which will help resolve the problems and without which the state of development and environment would, no doubt, deteriorate.
- One of the most important results of the study in the field of integrated environmental planning and natural resources management is a creation of a multi-technical team composed of experts from all related sectors in the country. A good technical experience of that team encouraged the Ministry of State of Environmental Affairs (MSEA) to set up a proposal project for integrated environmental planning in Damascus City and its surroundings. The study showed the magnitude of the environmental problems, and identified qualitatively and quantitatively the need for such investments and procedures for solving and rehabilitation of these problems. In this respect, the study illustrated the importance of pollution prevention as taking precautionary measures is more effective policy than rehabilitation.

Recommendations

- Elaborating of pre-investment studies for the most important cases in the coastal zone, which were identified in CAMP as the Hot Spots.
- Following up the Syrian CAMP study, which is considered as a preliminary stage, in order to evaluate the progress of coastal zone management, and check if it is going in positive or negative direction.
- Transferring towards strategic action plans for integrated environmental planning at regional level.

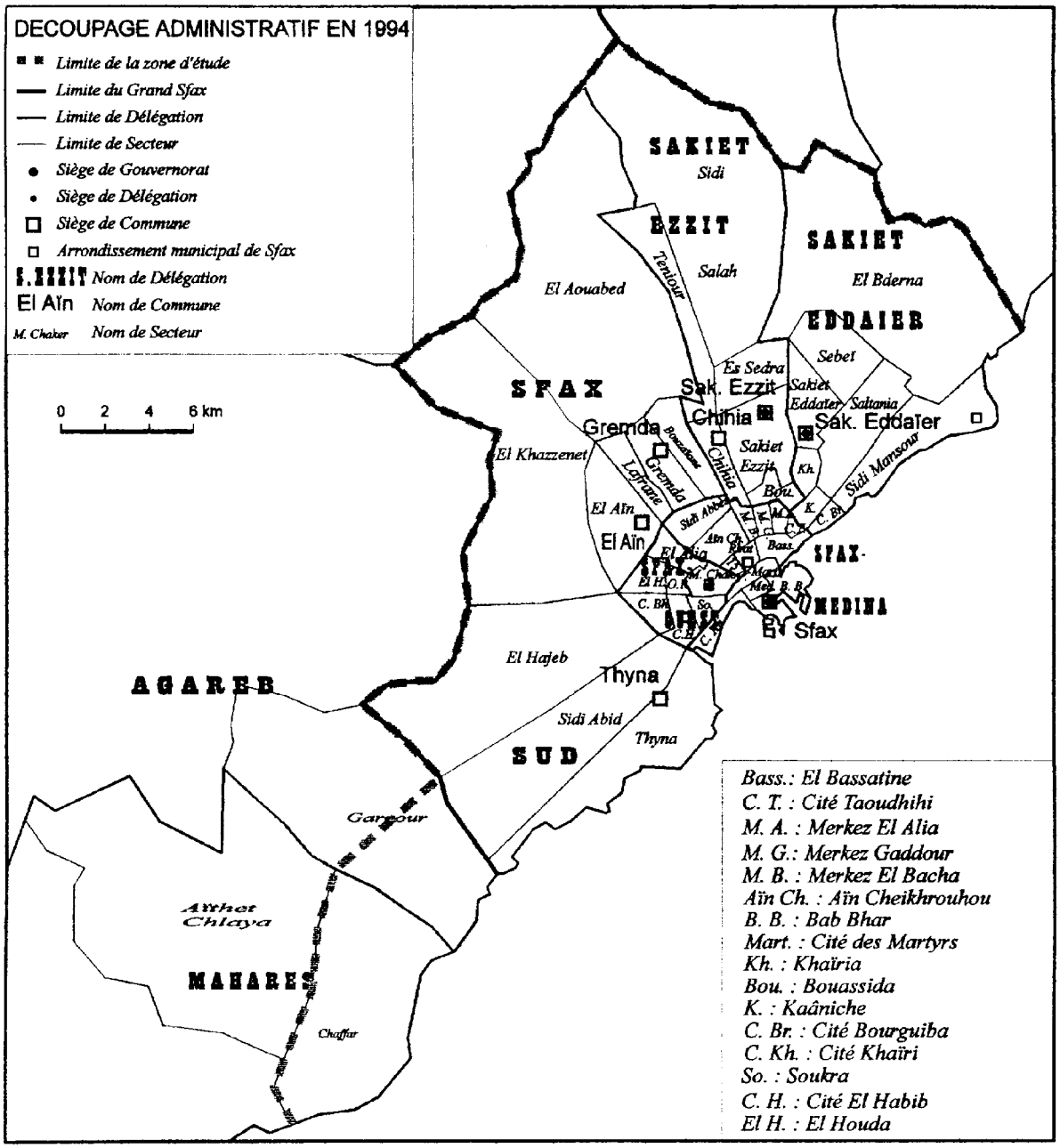
CAMP "SFAX", TUNISIA

Taoufik Gargouri
National Agency for the Protection of the Environment

a) Presentation of the CAMP Sfax Project

Within the framework of the Mediterranean Action Plan (MAP), a Coastal Development Programme for the city of Sfax has been executed and has concerned the part extending from the city port up to 20 km on the road to Gabès, and comprising towards the inland direction the present-day municipality of Thyna and the Delegations of Sfax South and Sfax Medina (Figure 1). This programme has been defined within the framework of applying the recommendations of the Contracting Parties for the elaboration of case studies on the planning for the Integrated Coastal Area Management (ICAM).

Figure 1: Global map for the administrative layout of the Sfax Governorship and of the study zone



The elaboration of the programme for the Sfax region was widely inspired by the process followed by the MAP in other cases realised in countries along the northern shores of the Mediterranean. The Co-ordinating Unit of MAP, as well as the different MAP Regional Activity Centres (RACs) have each participated as far as concerns the realisation of activities scheduled for the CAMP Sfax case. This last mentioned case started up in April 1994, following project approval by the Contracting Parties for an amount of **US$ 805,000** including US$ 435,000 representing MAP contribution and US$ 370,000 representing Tunisia's participation (in kind). The project was scheduled to cover a period of two years, but due to difficulties encountered in the data collection field, or to the availability of foreign and Tunisian experts, or again because of the time lag between the programming and the execution of the tasks, the date of achievement for the project was delayed until the month of December 1998, thus amounting to a delay of nearly two years.

a1) Main Activities Scheduled Within the CAMP Sfax Framework

The Regional Activity Centres (RACs) have shared the tasks with respect to the following scheduling:

i) Activities conducted within the framework of the MEDPOL programme

- Action 1: Introduction of an inventory of marine pollutants of telluric origin and of industrial pollutants, application of the "telluric" and "immersion" protocols;
- Action 2: Introduction of an on-going monitoring and research programme for the Sfax zone;
- Action 3: Investigation on the impact of forecasted climate changes.

ii) Activities conducted within the framework of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC)

- Action 4: Introduction of a national emergency schedule for the Sfax zone (critical situation protocol);
- Action 5: Implementation of a harbour reception installation (critical situation protocol).

iii) Activities conducted within the framework of the Priority Actions Programme Regional Activity Centre (PAP/RAC)

- Action 6: Preparation of a management plan for water resources, studying the state of the underground water table, proposition for on-going monitoring, measuring rehabilitation, proposition for a management programme;
- Action 9: Training in coastal zone technology and management (Environmental Impact Assessment – EIA, Geographic Information Systems – GIS, Carrying Capacity Assessment (CCA) for tourism) and application of same;
- Action 10: Preparation of an integrated management plan for the coastal zone (especially including sectorial studies on the management of solid and liquid waste, the protection of beaches, ground use, the protection and management of coastal resources).

iv) Activities conducted within the framework of the Specially Protected Areas Regional Activity Centre (SPA/RAC)

- Action 7-a: Studying the protection and management of the Thyna nature reserve.

v) Activities conducted within the framework of the Centre for 100 Historic Sites

- Action 7-b: Studying the management of the Sfax Medina.

vi) Activities conducted within the framework of the Blue Plan Regional Activity Centre (BP/RAC)

- Action 8: Prospective and systemic studies especially to include environmental/Sfax development scenarios.

vii) Activities conducted within the framework of the Environmental Remote Sensing Regional Activity Centre (ERS/RAC)

- Action 11: Application of satellite-based remote sensing and utilisation of a mathematical model for the characterisation of the sea currents regime in the zone of Sfax.

The study zone presents numerous problems related both to detrimental use of the ground for the benefit of industrial units, where one especially witnesses the installation of phosphate processing plants (NPK, where phosphor-gypsum waste has been directly discharged into the sea and was closed early in 1990, and SIAPE, which is still operating and represents the most critical point along the whole study zone) within land plots which are presently in the middle of the urban area, as well as other problems related to the fractionation of urban land plots in response to an increasing population and thus demanding more land for building around the city.

Industrial pollution thus poses a serious problem, which Tunisia has been able to recognise in the course of these last years through the installation of new structures with the responsibility to manage the environment, including the Ministry for the Environment and Land-use Planning (MEAT), the National Agency for the Protection of the Environment (ANPE), the Agency for the Protection and Management of the Coast (APAL), as well as other supporting structures. These administrations, seconded by legal texts covering the larger part of their field of action, have further contributed to the improvement of the citizens' urban environment. Industrial areas in the larger sense of the term (industries installed within industrial or agricultural zones, such as oil mills and agricultural and food industries) however continue to evidence certain deficiencies which the CAMP Sfax project has attempted – among others – to examine and propose the required solutions. The diverse nature of the above-mentioned activities further bears testimony to the considerable workload which was devoted to this investigation, research and assessment programme, and, of course, to the solutions which have resulted therefrom.

These activities have thus unfolded in common accord with the MAP while the Tunisian Government – represented by the National Agency for the Protection of the Environment (ANPE) – was designated in the role of the prime contractor. The consultants who realised the work were exclusively Tunisian consultants who, in the field of their work, were directed by foreign experts hired by the MAP, or scientists working within the RAC units.

It is further to be noted that there have been no problems in the execution of the work undertaken, neither from a scientific point of view nor from an administrative and logistic point of view; the project having nevertheless lasted over a period of four years in the course of which numerous missions took place: both those by foreign experts seconded to Tunisia and those by Tunisian consultants and civil servants travelling through the Regional Activity Centres (RACs). These assignments have been rounded up in the form of inter-experts concertation meetings, training periods in the GIS field, satellite images and the management of national parks.

b) Goals and Objectives of CAMP Sfax

b1) Reminder of the Problem at Study Zone Level

Based on numerous considerations, which are mainly of an environmental and urban nature, Tunisia has proposed the city of Sfax to enable MAP to follow-up on a Coastal Area Development Programme (CAMP).

In point of fact, throughout its existence the city has seen several problems including those related to industrial activity, with all the noxious effects which these can generate.

The city of Sfax, shaped like half a cobweb and built on land which is practically flat both East to West and North to South, further offers roads which all converge towards a constantly more constricted city centre. This same city offers a territorial layout which is impacted by numerous anarchic buildings, most of which no longer satisfy the inhabitants' basic requirements. The roads have become too narrow for the constantly increasing traffic flow; illicit effluents and the noise produced throughout the urban areas because the cottage industries have been installed both in an illegal and an anarchic manner, poses serious problems which the city has to deal with almost daily.

The Southern area of Sfax, which was retained mainly for the CAMP case study, offers other fairly specific problems over and above those already mentioned. In point of fact, this zone shelters the notorious phosphoric acid and fertiliser production plant (SIAPE), the city's urban sanitation water purification station, the public land-fill for urban and so-called urban waste, the land-fill for inactive waste, the new fishing harbour (which is not equipped with a purification station), the regional/municipal slaughter house (without a purification station), the regional bus depot, four industrial zones and many other units dating back over several dozens of years, such as the SIOS ZITEX specialising in the extraction of grignion oils and in the processing of vegetable oils.

This is otherwise a zone which plays the role of a recipient for numerous forms of pollution which are concomitantly water-based, solid and atmospheric, for which the project has undertaken to offer solutions and which the region and the state, in a general manner, could take into consideration and implement on the short-, the medium- and the long-term.

May we also recall that the socio-economic development of Sfax over decades has been undisputed and that it enabled it to remain the second ranking city after the capital. However, despite its 400,000 inhabitants in 1994, the rate of demographic growth (2.1% per year between 1984 and 1994) is below the average rate for the country (2.3%) and below that of the national urban scene (3.8%). This testifies to the low level of attractiveness exercised by the conurbation over its close and remote suburbs. This relative weakness in demographic growth is compensated by a 32% rate of activity in 1989 (against 31.4% for Tunisia as a whole) corresponding to a rate of unemployment of 11.3% against 15.3% on the national level.

Thus, Sfax occupies honorific positions in the production of oil, poultry, seafood, dairy products and many other products such as almonds and other dried fruit. It goes without saying that from an industrial point of view, Sfax often represents a significant centre which attracts a large number of investors as well as consumers and middle-men who all take part in its economic improvement.

b2) Summary of Main Recommendations and Products Originating from CAMP Sfax

CAMP Sfax programme has led to the formulation of multiple actions (35 of them listed) mainly concerning depollution and targeting the improvement of the quality of life, with curative, preventive and creative goals. The materialisation of these actions, some of which have already been undertaken or are being programmed, has an undoubted effect on depollution and thus on the rehabilitation of the coastline, to which different advantages in the economic, social, real estate and landscaping areas should be added.

The regrouping of these different activities enables us to suggest a series of recommendations which concern the following aspects:

- the elimination and/or reduction of the pollution types and sources;

- the treatment and/or reallocation of the polluted sites;
- the reserving and the rationalisation of the use of natural resources and the search for new potentialities;
- the follow-up on climatic data and on the responsiveness of the coast;
- the installation of an on-going pollution control programme;
- the safeguarding of historic and picturesque sites;
- the upgrading of different infrastructures in the economic, sanitation, transport, cultural and recreation areas;
- turning the attention of civil society to a higher level of respect for the environment;
- the confirmation of Sfax direct role;
- the installation of a co-ordination structure.

The study has shown that these recommendations have positive consequences on natural and human resources, on space in its different dimensions, on the components of sustainable development, and also on the actors concerned.

b2-1) Federating axes and integration parameters

CAMP Sfax has generated the idea that certain key factors predominate at the cost of other environmental and territorial management factors, which should not have been negatively affected. This explains the allocation of the ecosystem in the coastal zone of Sfax (marine, land-based, water, etc.) and the abundant nature of the threats, as well as the prospective rehabilitation of this space. These key parameters can practically all be found in the complete CAMP Sfax study concerning the sea, the water, the ground and energy, concerning the preservation, the maintenance, the rationalisation and the management of natural resources. It is the confrontation between these dynamic federating axes and the main constraints as well as with the components socio-economic development of Sfax, which translates the involvement between these different elements themselves, and reflects the driving role played by the infrastructures within the green-development.

b2-2) Solutions proposed for the Sfax ICAM

The rehabilitation of Sfax coast line is, in the first instance, dependent on the protection of the federating axes and the development of the infrastructures. It also involves the elaboration of a national schedule which fits into the context of sustainable development and provides both integration and coherence. The elaboration of this programme or integrated action plan, inasmuch as it leads to the organisation of the implementation priorities, includes the materialisation of a series of actions related to the above mentioned federating axes.

- **Federating axis Sea:** proposition for depollution and protection actions in favour of this natural resource, mainly centred on:
  - Relocation of the SIAPE facility and its phosphate-gypsum mound, the *sine qua non* condition for sustainable development in the CAMP zone, and enabling the safeguarding of all relevant natural resources (water, sea, soil, air, etc.) and even the promotion of the phosphates sector resulting from the fact that the future facility would integrate technological advances which would increase its productivity;
  - The realisation of the Taparura project (northern side of the city) in its three main components: depolluting the northern coasts, creating new beaches for bathing and the extension of the city centre through seaward land extensions;
  - The creation of the Thyna national park especially in its wetland zone component to elevate it to an international status in view its feathered fauna;
  - The realisation of the projected northern purification station, the upgrading of the southern station (the present one) requiring stricter observance of relevant standards, as well as the extension of the sanitation network to answer Greater Sfax requirements in the field of robust town planning.
- **Federating Axis Water:** the protection of this resource involves the realisation of earlier actions directly interfering with the water resource, as well as the materialisation of specific actions related to the elaboration of a water management and rationalisation plan, with the purpose of restricting the present-day overburdening of the already insufficient water table, as well as cancelling the clearly evident pollution of the water, which makes it unsuitable whatever every form of use.
- **Federating Axis Ground:** it would be a requirement to fend against the onslaught of a dense littoral and sub-littoral town planning effort, to select a policy leading to a review of the ground occupation rules in order to rationalise the utilisation of this resource while especially avoiding the impoverishment

of these zones and the multiplication of industrial entities, which have both a polluting and penalising effect for the neighbourhood and for the ecosystems.

- **Federating Axis Energy:** restricting as much as possible the risks related to exploitation, or even the unsuitable utilisation of this resource.
- **Federating Axis Landscape:** this is, at the same time, a natural resource to be protected and to be leveraged and the outcome of the different interventions of *homo erectus*. This involves the taking into account of the different above-mentioned actions, which are common to other federating axes, as well as the materialisation of other actions with a direct effect on the urban landscape, among which we would target the safeguarding of the Medina, promoting the landscape value of the northern coast, safeguarding Chott El Mardessia, and respect for the authentic character of the old harbour.
- **Federating Axis Infrastructure:** this is mainly an action tending to upgrade the transport infrastructures, to develop sanitation installations, to create equipment of an economic, tourist, recreational and cultural nature in harmony with the centre and the rank of the city. Of no less significance, the installation of a pollution control and monitoring network appears to be essential.

Finally, the study has generated a matrix which cross references the proposed lines of action and the federating axes, and which has proposed a priority ranking which is to be taken into account when the actions are materialised. Thus, while retaining only those which are not yet undertaken or programmed, the following priority actions emerge:

- Relocating the SIAPE and its phosphate-gypsum mound;
- Creating a national park at Thyna (PAN);
- Hydraulic resources management and rationalisation plan;
- And the upgrading of the transport, sanitation and tourist infrastructures.

b3) CAMP Influence on the Solution to Priority Problems in the Environmental Field – Development on the Local Scale

It should be indicated that the CAMP, further to leading to the proposing of solutions for the improvement or even the reconditioning of the living environment in general manner along the south coast of Sfax and all conurbations thereto attached, has in real fact brought together all the available data, whether this is at the level of the administrations (Ministries for Agriculture, for Equipment, for the Environment, for Culture, for Education, etc., and of the public enterprises which come under their direction) of the research centres and universities, of the NGOs (for instance: Association for the Protection of Nature at Sfax, the Bird Watcher Association, etc.) or of the public at large, in the course of concertation meetings.

This wealth of data can only be efficient and beneficial if it is construed in the manner of a single manual in order to enable comparison between data and to develop said data to the level of the predefined programmes and high level experts who have the capacity to criticise and extract the highest level of benefit for the region.

The region presently runs an initial study bringing together all the socio-economic, cultural, environmental and spatial-functional components which it will be able to actualise and update in terms of action lines undertaken, of those presently running and of those which still remain scheduled. In point of fact, what is involved is a dashboard which operates jointly with the 5-year economic development plans and will interfere with said plans in the form of an on-going link between them.

CAMP Sfax has become a promising regional project since its first year of execution, especially on the administrative and university levels. We will note, in particular, that the Blue Plan actions (systemic and prospective study of the region) as well as those of PAP/RAC have an enormous impact on the public at

large. In point of fact, the concertation meetings organised by Blue Plan for the benefit of the development scenarios of the Sfax system, or the training courses, the refresher courses and the different meetings animated by the PAP/RAC, have brought together the national, regional and local intervening parties and have also clarified CAMP objectives for their attention. We would also recall that the concluding meeting for the CAMP brought together, under the chairmanship of the Governor of Sfax, over 100 participants in addition to the representatives of the RACs, who debated on the results which were disclosed on the spot and discussed the recommendations formulated by the consultants.

Thus, both the decision-makers and the scientists became aware of the importance of the CAMP for the region and some of them expressed their desire to organise this experiment again in other regions of Tunisia which can be considered as zones having suffered from poor prior management.

The studies conducted within the CAMP framework have, on the other hand, contributed numerous solutions and futuristic propositions to remedy the previous errors and to implement an improved form of territorial management. The solutions proposed have been generated by local consultants from the worlds of academia and administration and were, in most cases, impregnated with ideas prepared to promote an improved management of the environment. Some of the solutions proposed were already in the course of implementation under the regional authorities, as for instance the project to improve the urban effluent purification system: installation of a second purification station for the northern part of the city OR extension and improvement of the present day station → the CAMP took part in contributing the justifications from the first solution, given the data which it was able to collect and the experience of the experts from MAP in the given area. Today, the first solution has been adopted.

Numerous other solutions, which were the prior outcome of the local decision-makers and developers have been analysed by the CAMP, which has contributed the required improvements or the justification for either their implementation or their rejection. The case of the SIAPE facility is one of the good examples in the sense where the proposals for its relocation are starting to mature at this point in time and will, possibly, be undertaken in the near future.

It emerges therefrom that the CAMP has influenced the solutions for the priority problems both at the local and the regional levels, and sometimes even at the national level, as some decisions could only be taken under the effect of ministerial decisions and reflections on the national scale (national follow-up commission).

b4) The Upgrading of Institutional Capacities for the ICAM

As far as concerns the upgrading of institutional capacities for the Integrated Coastal Area Management (ICAM), Tunisia, being aware of the importance of the coastal richness and of its national and Mediterranean significance, created the Agency for the Protection and Management of the Coast (APAL) in 1996, or two years after the CAMP started up. In fact, this was a well prepared decision as, faced with all the problems which the coastal space is experiencing: influence and impact of the major industrial and harbour towns and of closely packed sea bathing tourist activities, Tunisia, with a 1,300 km long coastline, was the second Mediterranean country after France (Conservatoire du Littoral) to devote a whole institution to the organising of its coastal area.

A young agency, APAL, whose tasks were in part entrusted to the Ministry of Equipment and Habitat, at this stage has a wider field of action and has the responsibility of managing and protecting the total coastal area. APAL thus has at hand a strong legal tool to apply an improved management at DPM level (Public Domain of the Sea). This environment was often the home of anarchic and illicit operations, to the point where a few urban buildings were often destroyed by the unchallenged forward movement of the sea; presently, APAL no longer allows these encroachments, to the contrary it even has the role of drawing up a detailed map of the whole coast and of constructions situated fully in the DPM, for the purpose of dealing with them on a case-by-case basis, and those which are judged to be forbidden and dangerous will be destroyed.

b5) Application of ICAM Tools and Techniques

The ICAM tools and technologies are in fact diversified and some of them are difficult to implement within a sufficiently short time, such as for instance the monitoring network for the quality of the sea. In point of fact, for this project – which was proposed at the level of the component entrusted to MEDPOL – we have noted that the INSTM (National Institute for the Sciences and Technologies of the Sea) presently has at hand a few

measuring and monitoring yardsticks against which the sea can be measured and checked in the Gulf of Gabès, but which remain short of providing a strict and accurate follow-up, such as MEDPOL intended.

However, for other tools such as the GIS, which is a very efficient tool for the description of the present-day status of the sites and for the creation of prospective models and has gained the managers' trust and constantly attracts more attention from the world of academia, which is encouraging the students at the end of their course to choose subjects on the GIS for their final dissertation or their DEA (Diploma for in-depth studies).

Control over polluted sites (such as the ancient margine landfill or the oil field operations), has also resulted in the triggering of awareness on the regional and national levels. In point of fact, we are presently seeing the implementation of several GIS at Sfax: at ONAS level (National Bureau for Sanitation), by the Municipality of Sfax, the University (the Sfax Faculty of Science, ENIS, the Faculty of Arts and Human Sciences, etc.), by NGOs and private design offices. All these GIS complement each other but do not overlap. Thus, attempts between the ANPE and some universities are underway to install a general GIS in compliance with what the CAMP proposed.

b6) Formulation and Implementation of National Policies and Strategies in the ICAM Field

As far as concerns the Governorship and, more to the point, the outline of the study, several activities undertaken have translated both the determination of the government to implement an ICAM policy and also the taking into account of the results from the CAMP Sfax. These activities as well as the main national strategies can be summarised as follows:

- The Taparura project: concerns the northern Sfax coast, but clearly translates the political determination to remedy the problems resulting from the old (and political) decisions, which took no account of the environment throughout an era when all interests were directed towards the development and creation of employment. The project targets depolluting the coast and reconciling the inhabitants with their sea, creating new urban, tourist and bathing spaces, and protecting a coastline which otherwise would run the risk of seeing further deterioration;
- Stopping the operation of the margine drying basins around the SIAPE and the creation of a sufficiently large margine landfill given the position occupied by Sfax in the field of oil production. It is to be noted that the margine landfills have been multiplying over the whole territory (and mainly within the coastal Governerates) to protect the sea and the tourist bathing zones;
- Sanitation and multiplication of urban purification stations. Presently, we have approximately 70 STEPs over the whole territory, whereas in some Arabian and African countries these stations do not exceed four or five. Thus, and as of 2001, all the stations scheduled or in the course achievement will all include tertial processing to provide an improved form of use for their purified water in the agricultural field and to avoid any probable contamination problem. It is also to be noted that experiments in sanitation for rural conurbations have resulted in the implementation of modular compact stations in a few rural concentrations.

  We would also note that, for the city of Sfax:
  - the North STEP has been retained and is already scheduled within the 10th plan;
  - the network is seeing on-going growth: that of the Sidi Salem zone (one of the largest industrial zones at Sfax) is in the course of installation and is in its final phase;
  - the network to connect the Chaffar bathing resort is in the course of execution and will be achieved in March 2002. The water will be backed up through a pumping station towards the Maharès STEP;
  - the rehabilitation programmes for existing networks are gaining constantly more attention and the workings are more and more frequent (both for Sfax and for Tunisia in general);
  - in the course of starting up the CAMP, the rate of urban connection to the sanitation network was approximately 50% whereas it is now at 65%, for 15% gained within nearly 5 years.
- The promulgation and enforcement of this new legislation targeting the protection of the environment especially to include:
  - Law 96-41 of 10 June 1996, relating to waste and the control of its management and elimination, has created a new era in the field of environmental management in the general manner and that of waste in a more specific manner. The field of waste transportation, which has often been ignored, is presently attracting attention from all the players (Ministry of the Interior, for Equipment, for Agriculture, waste treatment centres and, of course, the transporters themselves) and further enables the upholding of a certain vigilance against defrauders;

- The enforcement decree relating to the management of packaging as utilised (ECOLEF) which was promulgated in June 1997, or one year after the publication of the previous law, displays the determination of the government to deal with a "hot and promising sector". It has also contributed to the installation of a post-collection selective sorting programme which is refunded. This last mentioned was installed in the course of this year and has led to spectacular results from the point of view of spent packaging collected. For Sfax, and within 5 months (from July to October 2001) we have received over 25 tonnes collected by private parties (micro-enterprises). A programme of this nature has assisted both in the protection of the environment, in the creation of jobs (in collection, recycling, labourers hired by ANPE) and in the conversion of some polluters into new salvage dealers and active protectors of the environment;
- Another decree, which was published late in 2000, fixed the list of dangerous waste which was impatiently expected by industrial entities and environmental managers. This decree again contributed to the improvement of the field of management for dangerous waste and Tunisia's position in respect to said waste; we would recall on this occasion that a dangerous waste treatment platform is in the course of development;
- Two logbooks to follow up on the transporting of waste, (respectively dangerous and non-dangerous waste), have been prepared in compliance with the above mentioned law and have been commissioned as of September 2001.

b7) Disclosure and Exchange of Experience Contributing to the Formulation and Implementation of Policies and Strategies on the Local Scale

Through CAMP Sfax, several local administrations have contributed to materialise some of its actions. Thus, the representatives of these administrations which are often qualified and designated to closely follow-up on the development of activities, have in the form of a counter part been able to receive training in the fields which they are managing.

The courses, which have been provided on the Geographic Information Systems (GIS) by PAP/RAC and the BP/RAC, have been highly beneficial and have encouraged several participants to provide ANPE with the information required for the realisation of the GIS. These administrations presently have at hand the GIS for CAMP Sfax.

It goes without saying for the scope of the combat – and the preparation for the combat – against accidental pollution by hydrocarbons, which was realised within the framework of REMPEC activities and carried out by experts from the *Ecole des Mines* in Paris, the CEDRE and the ENIS; the inter-active schedule elaborated in CD-Rom format (with a user manual) has really retained the attention of all the players, both those invited to participate within the training cycles and those who have received it for information purposes.

On their side, the NGOs and mainly APNES (Sfax Association for the Protection of Nature and the Environment) have been benefited from the wide experience acquired by their members who are, for the most part, involved in the role of consultants at CAMP level.

As to the disclosure of information and studies realised within the framework of CAMP Sfax, ANPE has, in the course of the concluding meeting of CAMP, supplied a report on all the studies (11 action lines) elaborated in the form of a manual with some 60 pages. This manual provides a clear idea of the studies undertaken in order to be able to request them from ANPE at any occasion. In point of fact, several university researchers and administrators have borrowed the CAMP studies for their own benefit.

Presently negotiations are underway with university people from the Sfax National Engineering College (ENIS), the Sfax Faculty for Science (FSS) and the Faculty for Arts and Human Science (FLSH) as well as the Municipality of Sfax and the National Bureau for Sanitation, which are underway in order to gather all the information available, including the GIS for CAMP, in order to build a new GIS within which all the information layers will be gathered together and which relate to: urban space, nature, hydrographic networks, road networks, sanitation networks, electric and telephone networks, etc., the GIS for CAMP would be the backbone for this new GIS.

ANPE finally considers that CAMP Sfax is the first report within which diagnosis is provided for the present-day situation of the study zone and the list of proposals for improvement. It is thus for the regional authorities to ask for it for the purpose of using it to materialise the resulting recommendations.

b8) Upgrading of Training Capacities for Local and National Experts

Since the start-up of the CAMP Sfax project, an expert from ANPE has been nearly full time employed for the management, the follow-up of the project and the co-ordination between the different MAP centres involved. These tasks, often performed individually, enabled the project manager to properly perform his task, because he had the role of following the accomplishment of each task in compliance with the Terms of Reference which had been prepared for him. A few actions have, however, interfered in the course of time, which has sometimes resulted in delays for some of these actions relative to others.

As far as concerns training, we would note that both the project manager and a large number of civil servants from ANPE and from the Ministry for the Environment and Land-use Planning (MEAT) have benefited from training courses in GIS, in GIRE (Integrated Management of Water Resources) and in ICAM generally. The experts outside MEAT, to wit the consultants who have been the leaders of CAMP main activities, as well as those who have been present in the course of the project related events (training courses, meetings, follow-up commission) have learnt to manipulate ICAM tools such as the GIS or the combat programme – and the preparation for the combat – against accidental hydrocarbon pollution (REMPEC action).

At CAMP Sfax level, we would note the following specific training programmes:

- Training course on GIRE (Integrated Management of Water Resources) – PAP/RAC; given in Tunis for national and Mediterranean managers, the ministries concerned (for the Environment and their annexes, for Agriculture and Equipment) as well as university people;
- Training courses on GIS – PAP/RAC and PAP/RAC+ BP/RAC; given in Tunis for national managers from different ministries;
- Training course on the utilisation of the programme for the combat – and the preparation for the combat – against accidental hydrocarbon pollution – REMPEC; given for the main persons active in the case of accidental marine pollution (National Navy, Merchant Navy, APAL, MEAT, ANPE, Civil Protection, etc.);
- Workshop on the setting off of the maritime emergency plan – REMPEC; held in Tunis for the managers from the ministries concerned (Ministries for the Interior, for National Defence, for the Environment, etc.) and the other national and international personnel concerned (ITOPF, REMPEC, the media, etc.);
- Training courses on the utilisation of aerospace technologies in the field of follow-up on marine pollution – ERS/RAC; given for two managers from MEAT and ANPE (project manager);
- Training course on GIRE – PAP/RAC; held in Malta and in which ANPE and MEAT managers from Tunisia took part;
- Workshop on GILIF (Integrated Management of the Littoral and River Basins) – PAP/RAC; held in Malta and in which an ANPE manager from Tunisia participated (project manager);
- Different technical meetings held in Tunisia and at the level of the RACs' bureaux RACs themselves, especially at PAP/RAC, at BP/RAC, at ERS/RAC, at REMPEC.

b9) Co-operation, Exchange of Experience and Making Results, Methods and Procedures Available to Other World-wide Regions

CAMP Sfax has enabled the realisation of several contacts at different scientific and administrative levels. These contacts have translated into workshops and training courses which were joined by Tunisian and foreign experts and managers, as well as concertation meetings between Mediterranean experts of every nationality.

Further, over and above the previously mentioned training, which is considered in the previous paragraph to be a locus for the exchange of inter participant experience, the project has enabled very important contacts between Tunisian experts and foreign experts working in the midst of – or on account for – the regional activity centres. These contacts, which in most cases have consisted in meetings to trigger and finalise the scheduled action, have concerned all the centres and the experts which they have involved both on the Tunisian or the Mediterranean side.

Numerous researchers from different universities have been involved and we would, in particular, mention for each topic: the Sfax National Engineering College (ENIS), the *Ecole des Mines* in Paris and the CEDRE for action concerning the atlas realised by REMPEC; ENIS and the University of Alexandria for the action relating to climate change in the region; the Faculty of Arts and Human Science (FLSH) and the University

of Split (Croatia) and of Sophia Antipolis (France) for their action relating to the realisation of the maps and of the GIS at CAMP level; the Faculty of Economic Science and Management (FSEG) and the experts developing the plan as far as concerns systemic and prospective studies at Sfax.

All the results obtained at the outcome of the project were – in most cases – in the form of reports including: the diagnosis of the present-day situation, imagination and propositions leading to replacement (futures) and the recommendations for the implementation of reconditioning projects. Other results, such as for the GIS and the atlas, were effectively in the form of documents on computer-based media, or training programmes for the national and Mediterranean managers.

Nevertheless, to date the impact of all these activities, as well as their products in other Mediterranean or even world-wide regions still remain very modest. It is through the meetings of the Contracting Parties at MAP, the workshops or the publication of the RACs that we learn the news on the countries having benefited from these very rich and constructive experiences.

In point of fact, numerous countries from the Mediterranean basin seem to have gained experience, at this point in time, from these methods and procedures, especially through the RACs which were also conducted at that level; other countries in black Africa, Asia or Latin America have also had the opportunity to receive the experts from MAP, who have directed development and integrated management in that environment, especially for the domains concerning water and river basins for the coast and for the GIS.

c) Means and Methods for Project Follow-up

The National Agency for the Protection of the Environment being the project manager for the programme, has lodged the project at the level of the studies and projects Directorate (presently the Technical Department) and has made available the Director of Studies and Projects (a doctor in process engineering) in the role of project manager, as well as a Head Engineer (doctor in hydrology and isotopic geochemistry) in the role of the project leader, in order to provide all the conditions for success. The ANPE has also made available a complete logistic system, which is part of its participation in kind – as defined in the contract signed for this purpose.

It is to be noted that further means in hardware and software have been made available by PAP/RAC and this is within the framework of its financial participation to the project.

The role of Project Leader consisted in:

- Selecting and designating the national experts qualified to do the work requested by the RACs;
- Co-ordinating between regional activity centres and the designated Tunisian experts;
- Co-ordinating between the RACs in order to distribute the information and above all to avoid overlapping. This task was a capital task because, for several actions, two or three RACs were called on concomitantly to propose solutions. The project leader advises the centres concerned in time, puts them into contact, and provides follow-up on the results obtained;
- Taking part in concertation meetings to guarantee the quality of the work and sometimes attempt to regroup ideas and play the moderator role, if required.

c1) Financial Aspects for the Project

This project is funded with US$ 805,000 broken down into US$ 435,000 in the form of the contribution from MAP and US$ 370,000 for the Tunisian participation in kind. We note with satisfaction that all the activities

implemented have run in compliance with the plan drawn up for that purpose and this was due to compliance with the agendas and the costs defined and programmed in the agreement and the terms of reference.

The Tunisian party, on its side, has also complied with commitments in this field and – as has already been mentioned above – a complete team and existing logistics as acquired for the purpose have been put on line and utilised by the participants.

The region presently benefits from a data bank, from predefined actions and equipment enabling it to programme and draft APSs to materialise short-, medium- and long-term actions.

d) General Comment on the CAMP Sfax Programme

d1) Assessment of CAMP Management

CAMP management was, in fact, the responsibility of all the intervening parties both on the national and MAP levels. The role of the ANPE was certainly the main link in this general responsibility, as it consisted – over and above the provision of a link between all the participants – in giving them in good time all the required information and adequate logistics for the proper roll out of the project.

For the intervening parties, this responsibility reflected the fact that they were all called upon to succeed on this project: the MAP has to because it is the owner of the project and has the moral and physical responsibility to enable the countries in the Mediterranean basin to benefit from these new methods and technologies; the ANPE, in its role of prime contractor and main responsible party for the protection of the environment within the country, is obliged to conclude the project and to avail itself of new data banks and propositions in favour of reconditioning; the consultants did not have this obligation from the point of view of the payment and the contract, but mainly from that of their connection to their city and to their dedication to proposing the best solutions to replace it in its initial position.

Thus, apart from the delay incurred in the reception of the project and in the non-conclusion of MEDPOL's action relating to the presentation of an on-going monitoring and research programme for the Sfax zone, the programme did benefit from appropriate management and ultimately reached its goals.

d2) Relation Between Strategic and Local Action Questions

As has already been mentioned above, the national strategy of the country in the environmental field has seen an application at the level of the country as a whole. We are today seeing the creation of national parks, strategic axes, embellishment projects for the towns, collection and spent packaging reception centres, the ECOLEF programme, new treatment centres for urban waste (controlled landfills), etc.

Concerning CAMP Sfax, the strategies applied on the local level concern several sectors, among which can be mentioned:

- The controlled landfill at Gonna, which will open very soon;
- The programming of the new north Sfax STEP, as well as the extension of the urban sanitation network, whether this be at Chaffar or at le Sidi Salem Industrial Zone and other districts of Sfax and all this within the framework of the improvement of the quality of effluents in the water environment and of the increase in the urban purification rate;
- The implementation of the Taparura project and the creation of an administrative and technical entity for follow-up and implementation, etc.

In brief, everything converges to state the appropriate relation between the national strategy in the field of the environment and local actions undertaken within the framework of the CAMP Sfax project.

It will, however, be important to note that the SIAPE, which for the Sfax society remains the black mark on the city, to date remains without any clear and defined solution. We would also note that in the course of the last interdepartmental meetings, the case of that facility has been discussed at length and we therefore hope to receive news within the near future.

d3) Integration of Activities

The 7-10 action for CAMP Sfax is called: The Integrated Management Plan for the Southern Sfax Littoral. This is in fact the key action in the programme as it integrates all the previous actions, their results, their comments and their implications at the level of a final document which synthesises the complete project.

In terms of the drafting of this report, we have noted with satisfaction that the team which was in charge – and which had otherwise managed – other actions, did not have a lot of trouble to gather the data, integrate same and synthesise them in the form of a report including all the future propositions pronounced under the individual actions mentioned in the initial part of this report.

There also was strong co-operation between the BP/RAC and the PAP/RAC (for the elaboration of the main maps as well as the GIS for CAMP and to provide the GIS course given to the participants at MEAT) and then between these people and REMPEC (for the elaboration of the atlas for the combat – and the preparation for the combat – against accidental hydrocarbon marine pollution). At the level of these work programmes, there have been two key persons around whom the main part of this work was accomplished; this involves a local consulting geographer and the local GIS specialist, who both had the main data and the data processing records.

d4) Co-operation Between National and Local Authorities

This work would not have come to term if the co-operation between the national and local authorities had not been positive and fruitful.

In point of fact, both for the management of the CAMP itself and for its realisation, close co-operation was installed between the local team of managers and consultants and also the other national targeted and potential intervening parties.

Through their centralised aspect, some authorities, such as the MEAT, APAL and the General Directorates for Soil, Forest and Water Resources at the Ministry for Agriculture, the INS (National Statistics Institute), the Ministry for Culture and for Cottage Industries, as well as its annexes such as the INP (National Patrimonial Institute) are represented at the local or regional scale and have positively taken part in the conclusion of the CAMP.

The CAMP Sfax project was an opportunity to bring together a mass of information disseminated between several intervening parties and from other areas. Without their understanding and their conviction as to its usefulness and, above all, of the opportunity which it can provide (as well as taking it as a model and being able to super-impose it onto other regions), this research could not have been concluded.

d5) Participation of the Public, the Media and the NGOs

The project is more a research project, at least in its initial phase, than a project to apply urgent and scheduled decisions in the practical sense. Further, for the public at large, this project has gone nearly unnoticed; contrariwise for a few more concerned operators, i.e. university people, administrators, the media and the NGOs, this project has left behind both positive appreciation and numerous questions.

The project was otherwise interactive for this category of the population and the NGOs have taken part very efficiently. Because of the majority of consultants called in to take part in the project, there were members of the two main NGOs at Sfax, which are the APNES (Association for the Protection of Nature and the Environment at Sfax) and the Association of Sfax Bird Watchers. These two NGOs played both their own role in the form of organisations following the same order of ideas as the project and also in the form of a link between the ordinary citizen and the administration. Further, without APNES, numerous consultants would have run into a lot of difficulties for the accomplishment of their work.

d6) Involvement of the Economic Sector and the Fund Providers

The project proposed a list of recommendations and, above all, a set of project forms which could be realised following an order of priority.

Neither the time allocated to this project, nor the Terms of Reference were to enable them to present projects acceptable to a bank, which the regional authorities could directly take to the fund providers for the purpose of their ultimate execution. These project forms, however, are very useful as they in some manner represent

feasibility studies and already enable the area to be aware of the development and depollution priorities for the main axes within the region. Thus, we think that the role of the fund providers had not yet materialised at this stage of advancement for the regional projects.

Nevertheless, for the projects within the 10th plan which have recently come to light, and also for the Taparura project, the operations for the rehabilitation of the sanitation networks of the northern STEP or of the municipal Gonna landfill at Agareb, are projects which have attracted the attention of the fund providers (especially the Germans and the Japanese), who have considered that it would be both useful and urgent to implement them.

Thus, within this framework certain funds (mainly national) have been released and committed whilst others are in the course of negotiation.

e) Appreciations on the CAMP Sfax Programme

e1) Advantages of the CAMP Sfax

The CAMP Sfax programme has numerous advantages:

- At local level, it has:
  - reached its goals in compliance with the initial Terms of Reference;
  - enabled an exchange of information and the implementation of a data bank considered to be the first one for the region;
  - improved the scientific and general knowledge of the consultants involved;
  - provided training for local managers and experts in several areas;
  - provided solutions for reconditioning and development on the short-, medium- and long-terms;
  - contributed new management methods (water resources, river basins, coastal zones, etc.) with all the accompanying documents thus enabling the region to review them, to update them and to duplicate them for other locations in the same region.
- On the national scale, it has:
  - enabled a transfer of information, knowledge and means;
  - entrusted the Government (MEAT and ANPE) with the task of duplicating these methods, of providing follow-up and of improving them, if possible, as well as of judging them;
  - made available an ICAM model.
- On the Mediterranean scale, it has:
  - taken part in the realisation of several training cycles in which several Mediterranean managers have participated;
  - taken part in the promotion of the ICAM;
  - contributed more to the application of international and Mediterranean agreements in this subject;
  - enriched the MAP data banks and enabled a comparison between the behaviours of the governments and nations from one region to another with respect to the ICAM.

We should also note that the ANPE has entrusted the project to a project leader directly installed in Sfax, a decision which has enabled him to properly manage the project and to select regional consultants who are highly sensitive and concerned with respect to the environmental situation of the city.

e2) Disadvantages of the CAMP Sfax

Despite the advantages of the CAMP from a technical, financial, administrative and relational point of view, it has nevertheless embodied a few negative points, which we can summarise as follows:

- Drawbacks of an organisational order:
  - From the outset, the project ran into a few difficulties because of the organisation of the different actions and of the start-up of each of these. In point of fact, the RACs and the project leader (on the ANPE side) experienced some disorientation on the “how to start-up”;
  - The delays incurred with respect to the foreign experts coming into Tunisia sometimes coincided with the unavailability of certain Tunisian consultants who were essential to the proper running of the action;

    - The duration – 2 years according to estimates – for the achievement of the project was, right from the start, wrongly estimated. We should note that for the Mediterranean countries, the appreciation of the periods allocated to the roll-out of the actions differs from one country to the other in relation to the availability of the required data, the proximity of the country, of its economic, social and political situation, and of the availability of the consultants.
- Drawbacks of a technical order:
    - For Tunisia, a French-speaking country, the few English-speaking experts who shared in the actions and in the training of the Tunisian consultants, sometimes posed problems in the field of linguistic problems;
    - The documents proposed by the RACs to serve as Terms of Reference for the Tunisian consultants, in order to update them or even to guide them in the realisation of their work, sometimes were repeated from one centre to another or from one party to another within one same line of action;
    - Certain lines of actions could not apply solely to the study zone, but to the whole city or even to the Governorate itself. This created discussions and remarks from the consultants who, in most cases, decided to orient themselves beyond the limits of the study zone.
- Drawbacks of a financial order:
    - Certain actions, such as that concerning the installation of a coastline monitoring network proposed by the MEDPOL, require fairly heavy investment, which neither the CAMP nor the Tunisian Government had foreseen;
    - For an improved management on the Tunisian side, there was a lack of financial support specific to the management of the project. The commitment from Tunisia to participate in kind for an amount estimated at US$ 370,000 functioned properly, but financial support from the MAP would have provided an improved start-up and follow-up for the project.

e3) What Should be Retained from CAMP Sfax

CAMP Sfax has left very positive appreciations at the level of all the participants, both regional, national and international. It is also the regional and local people who talk the most about it and often ask for news concerning the recommendations and the project forms which they had developed.

CAMP Sfax is considered as a yardstick for several regional and national operators. The developers and the university people, above all, are the most attentive to follow the news which could be expected concerning CAMP Sfax.

CAMP Sfax is a multi-disciplinary programme which has scrutinised all the data from the Sfax region and has stripped it naked; all the speakers were targeted public operators and university people. These parameters have enabled the success of the programme and the introduction of valid and relevant solutions.

f) Suggestion for CAMPs Improvement

f1) Concerning the CAMP Formulation

To improve the CAMP formulation we have noted as follows:

- More actively involve the RACs at the level of the discussion on the Terms of Reference in the different activities; each centre will introduce its theoretical propositions and its adaptations to the country concerned, alongside all required justifications. Thus, for this purpose the country concerned should be brought to participate in this level of discussion;
- The ERS/RAC (which joined the MAP in the course of the realisation of CAMP Sfax), will especially improve the definition of its tasks and will orient them according to the requirements of all the Mediterranean countries:
- Given mainly the geographical, morphological and socio-economic specificities of the Mediterranean countries, Terms of Reference should be proposed which would answer the requirements of these countries according to the three following groupings:
    - The countries on the Northern shore of the Mediterranean;
    - The countries along the Southern shore;
    - The countries with a small coastal area.

- Impregnating the countries, in the course of preparing their CAMP, with the experience from other countries and – as may be required – offering the prime contractor the possibility of visiting the countries having executed CAMPs in their homeland in order to draw the highest level of information and "lessons" so as to adapt them to one's own future CAMP, within its context and national situation.
- Discuss the period which will have to be allocated to each CAMP according to the countries concerned relative to the aptitude of the country to host a project of this nature (legal texts), to the availability of the data and the consultants and the general situation of said country in the determination to contribute the changes required for its improvement and, above all, to integrate same at the level of national and regional development plans.
- Devote the work of the CAMP to fewer topics than those presently running in order to realise projects within fairly short time spans.

f2) Concerning the CAMPs Implementation

To implement CAMPs, and given what has been introduced above (§ e-2), it would be useful to:
- give the CAMP managers and a few consultants the benefit of further training sessions and courses in the areas where they are least knowledgeable;
- assist the host countries for the installation of a micro structure which would be in charge of managing the CAMP through the financial means which are appropriate for this task;
- ask the national organisers to obtain the highest level of participation from the regional people in order to attract them to the installation of a CAMP in their reciprocal regions;
- in the course of the training sessions and workshops, more non-Mediterranean people should participate, both at the level of experts and at the level of trainees, in order to compare international methods in this field and share the experience from all persons present;
- orient the work of the RACs and CAMPs along topics, individual cases and sectors where it is easier to materialise the expected recommendations.

f3) Concerning Follow-up on the CAMPs

To provide discerning follow-up on the CAMPs in the course of their realisation, we propose to:
- Prepare, as is the case for the Terms of Reference and the contracts with the national consultants, schedules for the RACs interventions in order to programme same at the level of the CAMP national management cell and to further remain as much as at all possible within the limits of the period allocated for each task; this will further enable the avoiding of concomitant overlaps in the targeted interventions of the two RACs.

As far as concerns follow-up after the CAMP completion, the countries concerned should advertise their CAMP as much as possible on both the regional and national levels so as to obtain the fulfilment of the recommendations which it will, on the other hand, enlist within the national development plans.

g) Summary

The CAMP Sfax project, elaborated on request from Tunisia to the United Nations Environment Programme (UNEP) and the Mediterranean Action Plan (MAP), was rolled out between 1994 and 1998 and has led to the formulation of several recommendations concerning the improvement of environmental conditions in the Southern Sfax region. These recommendations have touched on different development aspects, including especially the pollution generated by the industrial entities installed along the seaside, the anarchic use of the coastal territories, the improvement of socio-economic conditions related to coastal and global domains of the Sfax Governorate.

In the course of this report, we have started by presenting the summary of the project itself, the goals which have been reached, and then the conditions under which it was rolled out. The multi-disciplinary team, which has been at the same time national Tunisian and international Mediterranean, and which was hired for this purpose, has been accentuated. We have also attempted to present the impact of the project on the region and the impact of the region on the project; in fact what is involved is to clarify the advantages and drawbacks of a project of this nature on the Sfax region, as well as the expectations of the different intervening parties.

The project has consisted in teaching how to proceed with the installation of an Integrated Coastal Area Management (ICAM) method. A method of this kind requires the intervention of several specialists in different areas, which range from environmental technicians (mainly in depollution) to economists, sociologists, managers and developers.

The case of the CAMP Sfax has been a reference of its type for the region and for the country in a general manner. We have further found that it was opportune to draft a project assessment for all the components, both at the level of its preparation and at the level of its execution or follow-up. We would note that for the projects of a regional character (the object of which is to provide a diagnosis on the present state of any given situation and to propose recommendations for improvement) several opinions can emerge and these can be out of harmony. However, for the CAMP Sfax project, the running of the actions adhered to a previously proven scientific methodology and led to the expected material recommendations, but it has also enabled the collection of information and the creation of a data base covering the study zone and the Sfax region.

The evaluation of the project has also enabled the recognition of the project's advantages and drawbacks and, at a later point in time, the drawing up of recommendations and suggestions required for the improvement of the future CAMPs which the MAP intends to install in other Mediterranean countries.

h) Recommendations

The CAMPs, over and above their direct advantage for the targeted regions, globally enable:

- exchanges of information and the installation of data banks which can be used on the local, national or regional (Mediterranean) levels;
- the improvement of the scientific and technical knowledge of the consultants hired;
- the training of local managers and operators in several different fields;
- the provision of solutions to enable reconditioning and development in the short-, medium- and long-term for the damaged sites;
- the contribution of new management methods (water resources, river basins, coastal zones, etc.);
- guaranteeing the transfer of information, knowledge and means;
- enabling the Government to avail itself of a ICAM model which can be used in other regions within the country;
- taking part in the promotion of the ICAM in the Mediterranean and elsewhere;
- contributing more to the application of international and Mediterranean agreements in this matter;
- enriching the MAP data banks and comparing the behaviours of the governments and nations from one region to another vis-à-vis the ICAM.

Thus, to fully provide these functions, the CAMPs will have to:

- become much larger than they are at present and have at hand a wider distribution in order to contribute mainly to upgrading the preventive and then curative methods which have to be applied for the Mediterranean basin;
- be performed over fairly short periods (two years or less);
- to have more funds in order to acquire an improved logistics system, as well as a certain flexibility through the hiring of the desired consultants;
- involve a larger local and national public, in order to empower governmental and NGO structures as much as at all possible;
- multiply concertation meetings between the RACs and the prime contractor, in order to avoid overlapping and thus contribute to the appropriate execution of the project.

CAMP "THE BAY OF IZMIR", TURKEY

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1. Description of CAMP "The Bay of Izmir"

1.1 General Characteristics of the Area

The Izmir Bay is one of the largest and most enclosed bays on the Aegean coast of Turkey. It has a shape similar to that of a boot (L-shaped with a heel). It is usually described to have three sections: the Outer Bay, the Middle Bay and the Inner Bay. The division of the Izmir Bay into these three sections is indicated in Figure 1. The water volume, surface area, and the mean water depth of different parts of the Izmir Bay are given in Table 1 (Uslu, 1995). The deepest part of the Bay is at its entrance to the Aegean Sea (-71 m), which is 24 km wide. The water depths in the Middle and Inner Bays gradually decrease from West to East. The deepest location of the Inner Bay is -21 m. At the eastern tip of the Bay where the Melez Creek discharges, the water depths drop to less than -10 m. This is the most enclosed part of the Bay, and is one of the worst polluted sea basins all along the Turkish coast.

The total drainage area of the Izmir Bay is nearly 20,000 km^2 (about 40 times the surface area of the Bay). The main factor for the fresh water inflow is the Gediz River, which has a drainage area of roughly 17,500 km^2, and is the second largest river discharging into the Aegean Sea (to the Outer Bay) from the Turkish coast. In addition to the Gediz River, there are numerous small creeks discharging into the Bay, with a total drainage area of 727 km^2 (Uslu, 1995).

The whole of Izmir Bay is among the most productive water bodies of the Turkish Aegean coast. In the past, the quality of fish caught in the Izmir Bay (especially the sole and the sea bream) was highly valued. The Bay provides nearly half of the total fish catch from the Aegean Sea (Uslu, 1995).

There are several sites of very high ecological and cultural significance along the coast of the Izmir Bay. Some of these have a type of protection status (such as the Specially Protected Area of Foça, the wetlands next to Çamaltı Salt Works and the nature reserve of "bird paradise" located on the old delta of the Gediz River). Foça SPA (declared in 1990) is among the most important habitats along the Turkish coast for the extremely endangered marine mammal, the Mediterranean Monk Seal (Monachus monachus).

Table 1: The water volume, surface area and the mean water depth of various parts of the Izmir Bay

	Water volume (10^6 m^3)	Surface area (m^2)	Mean water depth (m)
Inner Bay	407.7	57	7.2
Middle Bay	703.8	70	10.0
Outer Bay I	4,862.7	168	28.9
Outer Bay II	2,007.7	136	14.8
Outer Bay III	8,383.5	235	35.7
Overall	16,365.4	666	24.6

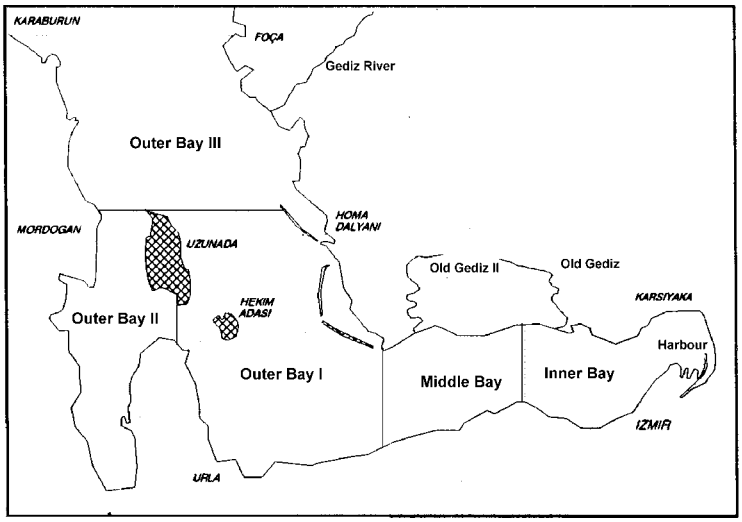


Figure 1: The Bay of Izmir and its division into three parts (Inner, Middle and Outer Bays)

There exist prime agricultural areas especially along the northern shores of the Inner Bay and the Middle Bay (Menemen valley, the old and new deltas of Gediz and its inland basins). These agricultural lands have been losing to uncontrolled urbanisation and new industrial development.

The Metropolitan City of Izmir, which is the third largest city of Turkey, is located along the shores of mainly the Inner Bay. The City of Izmir has undergone a rapid expansion since the 1960's due to massive migration flows, losing its green peripheral areas to illegal housing developments.

The coastal belt of the Izmir Bay, which houses ten small municipalities in addition to the Metropolitan Municipality of Izmir, has very high values for recreation and tourism. The value of land in the coastal areas of the Izmir Bay is among the highest category in Turkey. The small coastal towns along the shores of the Izmir Bay serve for the recreational needs of the large population of the City of Izmir, through daily visits, or including accommodation in numerous hotels and in self-owned recreational (secondary) houses.

The Inner Bay of Izmir, together with the Nemrut and Aliağa Bays in the north, have the densest concentration of the industrial facilities in the Aegean region of Turkey. The majority of these are the "polluting industries", and they have been responsible for serious adverse environmental impacts.

Marine transportation in the Bay is an important activity since the Port of Izmir is one of the most important export ports of Turkey. This rather old port is placed in the Inner Bay right in front of the town. There has been a continuing discussion for building a new modern port away from the town and using the present port for recreational purposes.

1.2. Phases of the Project

The project was carried out in two phases as two successive projects.

Phase 1: In 1987, PAP launched the programme of "Country Pilot Projects (CPPs)". The Izmir CPP was selected in the first (and the only) group of the projects together with three others, and was carried out between 1988-89. The major emphasis was given to the pollution of the Izmir Bay throughout Phase I. Several documents on various aspects related to water pollution in Izmir Bay were prepared. These included the documents: "*Fact-Finding Mission to Assess the State of Pollution of the Izmir Bay*", "*Environmental Management and Recovery of the Izmir Bay – Approaches and Proposals*" (including draft programmes for: a) Long-term monitoring programme of the Izmir Bay, b) EIA of stabilisation ponds and submarine outfalls, c) Study of the waste recovery capacity of the Izmir Bay, d) Determination of effluent quality and location of submarine outfalls, e) Recovery of the Inner Bay of Izmir), "*Environmental Impact Assessment for the Izmir Sewage Treatment Project*", and "*Natural Characteristics of the Izmir Bay and the Impact of Waste Water*". Furthermore, a detailed oceanographic study of the bay and an expanded monitoring programme were stated. Towards the end of this project, the issue of the integrated planning was dealt with in expert meetings, a document ("*Proposal Relative to the Organisation of a Preliminary Study of the Integrated Plan of the Izmir Area*"), and a training course (Methodology of Integrated Planning, December 1989).

Phase II: Preparation of Coastal Area Management Programme (CAMP) for the Bay of Izmir was approved by the Sixth Ordinary Meeting of the Contracting Parties to the Barcelona Convention (Athens, October 1989). The Turkish Government and the Mediterranean Action Plan (MAP) signed the agreement ("*An Agreement Relative to the Preparation of Coastal Area Management Programme for the Bay of Izmir – Turkey*") in June 1990. After a period of preparations, CAMP "The Bay of Izmir" was started in October 1991. The project was concluded by a presentation meeting held on 29-30 September 1993. In this phase of the project, the so-called "*Integrated Management Study for the Area of Izmir*" was completed.

1.3. Main Actors

On the Turkish side of the project, the main participants were the Metropolitan Municipality of Izmir (Departments of Planning and Environmental Health) and the Ministry of Environment (mainly the Department of Foreign Relations). In some activities of the projects, such as the workshops and training programmes, a number of representatives from other institutions (such as the universities) also participated.

From the side of the Mediterranean Action Plan, the main contributors were the PAP/RAC and the MAP Co-ordinating Unit (MEDU). Other Regional Activity Centres operating under MAP, such as the Blue Plan (BP), Specially Protected Areas (SPA) and Regional Marine Pollution Emergency Response Centre (REMPEC) were cited in the signed agreement to carry responsibilities in specific components of the project. However, none of these components was really carried out during the period of the project.

The World Bank was also mentioned in the project agreement as a contributor and donor. However, the financial contribution of the World Bank could not be realised.

1.4. Objectives of the Programme and the Main Issues Addressed

The objectives of the programme were described as the "long-term objectives" and the "immediate objective" in the **project agreement document** as follows.

The long-term objectives

- Propose a development concept of the area of Izmir harmonised with the receptive capacity of the environment;
- Create conditions for the establishment of the system of integrated planning and management of resources in the area of Izmir by:
  - establishing a monitoring programme of the environment on a permanent basis;
  - setting up a data base of all necessary environment and development indicators;
  - providing training of local experts on various aspects of the programme.

The immediate objective

The immediate objective is to give, within the individual actions, solutions of environmental problems of the most urgent nature that could be implemented immediately.

In the **final report** of the project, the major objectives of the study are restated as follows:

- to prepare an environmental profile of the Izmir area based on existing (secondary) data;
- to establish, in a rapid and rational way, the framework and elements of the ICAM programme, as well as to perform "on-the-job" training of the local experts by applying an established methodological approach;
- to contribute to the mitigation of environmental effects of various development activities, and to establish a management framework for a desirable use of coastal resources;
- to propose general objectives and policy guidelines for the activities towards a long-term development harmonised with the carrying capacity of the ecosystem;
- to propose a methodological and organisational framework for the preparation of the Integrated Coastal Master Plan for the area of MMI.

In the **project agreement document**, the main expected benefits and outputs of the programme are listed as follows:

Main expected benefits of the programme

- improvement of the state of a number of ecosystems;
- incorporation of environmental considerations into planning activities and decision-making process;
- enhancement of local capacities in solving various development and environmental problems;
- transfer of knowledge from relevant international organisations to local institutions;
- practical verification of theoretical and methodological knowledge of MAP components;
- creating conditions for responding to some accidental situations.

Main expected outputs of the programme

- proposals for immediate actions;
- technical and economic measures for addressing existing environmental problems;
- integrated management plans;
- studies and reports on the specific subjects;
- training of local and national experts;
- demonstration projects;
- monitoring programme;
- data base for various development and environmental aspects;
- software to be used in solving some specific problems.

1.5. Activities

In the **project agreement document**, the following eleven activities described in three groups were proposed for implementation in CAMP "The Bay of Izmir":

- Implementation of legal instruments:
  - Land-Based Sources and Dumping Protocol;
  - Emergency Protocol (Contingency Plan) and MARPOL Convention;
  - Modified Oceanographic Monitoring Programme;
  - Study of the assimilative capacity of the Izmir Bay;
  - Study of the recovery of the Inner Bay of Izmir;
- Resources:
  - Implications of expected climatic changes;
- Planning and management:
  - Training programme on Geographic Information Systems (GIS);
  - Environmental Impact Assessment (EIA) of submarine outfalls;
  - Development-environment scenarios;
  - Specially protected areas;
  - Integrated planning and management.

Other activities were said to be "decided upon later on the basis of the subsequent indications of the project".

Among the eleven activities, five of them, numbered (2), (3), (6), (9) and (10), were not undertaken at all. The activities numbered (4), (5) and (8) were partly carried out in the first phase of the project in the years 1988-89, and not dealt with more in depth in the second phase. The EIA study (8) was carried out in 1989 for the sewage treatment project as a whole, and not specifically for the submarine outfalls.

2. Achievements of Aims and Objectives of the CAMP, the Use of the Results and Proposals at National/Local Level

2.1. Influence of the CAMP to the Solution of the Priority Environment-Development Problems at the Local Level

2.1.1. General

CAMP the Izmir Bay was formulated to provide solutions to the environmental-development problems at the local level, by using the support available from the existing framework of management at the national level. The main actor in the project was the Metropolitan Municipality of Izmir, the local administration unit that is

responsible for land-use planning and environmental management within the municipal boundaries. However, some of the problems addressed in the CAMP, such as the pollution of the Izmir Bay, cannot be confined to the boundaries of the Metropolitan Municipality of Izmir. The exclusion of the other smaller municipalities located along the shores of the Izmir Bay is a shortcoming of the project.

2.1.2. Pollution of the Izmir Bay

Pollution of the Izmir Bay was the main reason for undertaking the Country Pilot Project (CPP) in 1988. Three reports were prepared related to this subject in Phase I of the project. The first of these ("*Fact-finding mission to assess the state of pollution of the Izmir Bay*"), authored by three foreign experts, was published in 1988. This was a report that provided the assessment of the experts on three issues, based on the information collected and observations made during a five-day long site visit (1-5 December 1987). The issues covered were "Treatment plant sewerage system and waste water reuse", "Eutrophication of the Bay of Izmir and Recovery of the Inner Bay", and "Water resources and pollution assessment". The experts proposed several studies on each of these issues, including an oceanographic study to back up the design of the marine outfall and evaluation of the fate of pollutants, an EIA for the proposed treatment plant, the assessment of the expected pollution and the assimilative capacity of the Bay of Izmir, and the crucial elements for the recovery of the Inner Bay.

The second report ("*Natural characteristics of the Izmir Bay and impact of waste water*", December 1989), prepared by two experts from the Middle East Technical University (Ankara, Turkey), described the information derived from the monthly data obtained from field monitoring in 1988 on physical, chemical and biological parameters. The monitoring programme was funded by the Ministry of Environment and conducted by Dokuz Eylül University, Izmir. Although the quality of data on chemical and biological parameters were questioned in the report, it was concluded that the "Inner Bay is polluted by nutrients, organic material and bacteria". The sediments of the Inner Bay were found to contain Hg and Cd concentrations higher than the natural levels. The main sources of pollution were indicated as the streams flowing to the bay. The report proposed a revised monitoring programme. However, an indication could not be found if the monitoring programme was continued (most likely not).

The third report ("*Preliminary study on the costs and benefits of measures for the reduction of degradation of the environment from land-based sources of pollution and activities in coastal areas of the Bay of Izmir*", 1991) was prepared jointly by a Turkish and a foreign expert.

In Phase II of the project, only one report prepared by two experts from Middle East Technical University, Ankara, Turkey ("*The environmental profile of the Izmir area*, 1992), among nine reports prepared in this phase, touched upon very briefly on the subject of water pollution in the Bay of Izmir. This report summarised the state of the environment including the issues of marine pollution, surface waters, air pollution, soil pollution, noise pollution and public health. The treatment of the marine pollution in the report is very brief and shallow, and does not add much to the already published results.

Among four proposals for further studies in relation to the pollution of the Izmir Bay, made after the fact-finding mission carried out in December 1987, the only activity that was carried out in the context as it was proposed was the EIA for the sewage treatment plant. This is described in the next section. The oceanographic monitoring in the Izmir Bay was carried out only in 1988, with questionable quality of data on chemical and biological parameters as mentioned earlier. Although the other two issues (the assimilative capacity and the recovery of the Inner Bay) have been mentioned in several documents and proposals for further activities have been made, no substantial work has been carried out in these directions and no significant progress has been achieved on these very important issues.

2.1.3. Environmental Impact Assessment of the Izmir Sewage Treatment Project

This study was carried out in the first phase of the Izmir Bay project (1988-89). The Izmir Sewage Treatment Project is a part of large-scale wastewater management project for the City of Izmir that dates back to the early 1970's. The construction phase of this project, which was financed by the World Bank, started in 1983. Due to several important potential environmental consequences, the question of sewage treatment and disposal has been a hot topic of discussion among the Turkish experts since the master plan of 1971, and there have been several proposals for both treatment and disposal. The accepted concept for the wastewater treatment plant in the project was to provide a combination of both unaerated and aerated pond systems located at the salt flats of the old Gediz Delta facing the Middle Bay. The treated effluent was to be discharged initially to the west channel of the old Gediz River. Discharge of the effluent to the Outer Bay by means of a marine outfall was kept as an option for future.

During the Phase I of CAMP "the Bay of Izmir", an EIA study was carried out by a trio of foreign experts on behalf of PAP/RAC. The study concentrated on several potential adverse impacts associated with the operation of the treatment plant and disposal of the treated effluent to the Middle Bay. The EIA study concluded that if the effluent were to be discharged through the course of the old Gediz River, the part of the Middle Bay adjacent to the river mouth would suffer from bacterial pollution and nutrient enrichment. The possibilities of nutrient transport to the Inner Bay especially during the summer season and eutrophication were mentioned, but a detailed analysis on either of these phenomena was not carried out. The EIA study recommended that the effluent should be discharged to the Outer Bay by means of a marine outfall and that "an adequate study of the assimilative capacity of the bay and an investigation as to the proper site of the sea outfall discharge" be carried out.

It might be interesting to note that when the EIA study for the Izmir Sewage Treatment Project was carried out, such an assessment was not yet obligatory in Turkey according to the existing legislation. The by-law on EIA was passed later in 1993, and the necessity of EIA for all significant projects started from then on. Consequently, the EIA study carried out in the scope of the CAMP the Izmir Bay did not really have any operational use when it was prepared. It served only as a technical document contributing to the ongoing discussion on the issue at that time, and an example for similar EIA studies to be carried out in future.

2.1.4. Creation of a database on environmental/development issues and environmental zoning of the area of the Metropolitan Municipality of Izmir

CAMP "The Bay of Izmir" outlined the need for data and information for effective planning and management. The study pointed out that in the area of Izmir, a considerable amount of data is being collected by the local planning and other departments, and other institutions, as well as by the regional and central government bodies. However, much of these data is either not accessible or not in a format that makes it readily usable. It was further stressed that the data-collecting institutions pay attention to only particular needs (their own needs), and do not have a wide vision for probable uses of the collected data by other organisations for various purposes.

For supporting the training of the local experts on the use of Geographic Information Systems (GIS), a first attempt was made to create a GIS database comprising a large volume of spatial data on environmental and resource characteristics of the Metropolitan Municipality of Izmir (MMI) area at the scale of 1:50,000. This database was proposed to be "the core of the information system for macro level GIS applications in supporting planning activities within the context of the Integrated Coastal Area Management (ICAM). Along this line, the study proposed that the GIS database be extended in content and the area of coverage, and updated in time. Furthermore, formation of an Information Steering Group, comprising members of the local universities, the MMI Planning Department, and other institutions involved in planning and environmental management was recommended.

Based on the database, an attempt was made in the study for making the environmental zoning of the MMI area. Five zones were identified, having different use and development potentials. These were: Zone A: Urban development + agricultural use; Zone B: Agricultural use + limited urban development; Zone C: Limited urban development + forestry; Zone D: Protection and preservation of the nature and the wildlife; Zone E: Upland forests + recreation + nature conservation. The proposed zoning was not compared with the existing land-use policies and the Master Plan for the area from the year 1972, and specific recommendations were not made in this direction.

2.1.5. Land-use pattern and development-environment interactions

Trends of the population growth in the MMI area were reviewed by the project, and the implications of these for the future urban development were considered. The existing patterns of the economical activities in the area, with special attention to industry and port facilities, agriculture and tourism, were presented and discussed. The land-use pattern in relation to urban development was reviewed. The maps showing the characteristics of rural and urban land use, the spatial extent of illegal housing and industrial facilities were prepared. Various adverse environmental impacts of specific industrial establishments, and conflicts with other potential uses (fisheries, tourism and recreation, protection of water resources, housing) were pointed out. The shortcomings of the Master Plan of 1972 and the problems associated with its implementation were briefly discussed. The study also reviewed the use of water resources, management of wastewater and solid waste, and the energy usage within the MMI area. Brief discussions on several features indicating the state of the environment in the MMI area, including the water quality of the Bay of Izmir, pollutant loads of streams, air pollution, soil degradation and noise pollution were presented.

The review undertaken by the study on the land-use pattern and development – environment interactions was a brief review based on the available data and information, and used standard methods and procedures. It serves to highlight several critical issues pertinent to the existing land-use and economical activities, as well as to the environmental quality and management in the MMI area.

2.1.6. Integrated coastal and marine area management

A significant part of the "*Integrated Management Study for the Area of Izmir*" deals with the elements of integrated coastal and marine area management. The study provided a comprehensive list and a level of in-depth discussion of the key environmental issues of the area associated with the development process, as well as several indications on the inefficiency of the present environmental management. The main environmental issues were: urban growth, illegal housing, concentration of industry, infrastructure system, sewerage, water supply, energy, transport, air quality, soil and vegetation cover degradation, fresh water quality and availability, noise, and environmental hazards (such as earthquakes, sea level rise). The factors that contributed to the inefficiency of the environmental management were: a) inability of the management system to respond adequately to the changing needs of the area, b) diverging policy objectives pursued by various authorities responsible for management, c) shortage of funds for environmental management, d) the absence of cost recovery for the environmental services provided, and thus not generating sufficient revenues that could be used for new infrastructure projects or for improving the old ones, and e) the absence of a mechanism for taxing the land-value increases resulting from investments in infrastructure, land registration and titling for generating revenues, which could be used for implementing the urgent urban development programmes.

The study compared two options for urban growth. These were "do-nothing (or trend) option" and the "moderate growth option". The second option incorporated policy measures to slow down population growth and to reverse the course of polarised regional development for decreasing the pressure on the coastal area of MMI. The population of MMI was estimated to exceed 5.1 million residents in the first option in the year 2025, and only 3.9 million in the second. The projected figures for the labour force in 2025 were respectively 3.6 million and 2.7 million. Obviously, the differences of the above figures would have significant implications on the wastewater discharge rate and the amount of pollutant constituents generated. Similar consequences would be seen in the fresh water quality and demand, land available for urban development (which is a rather scarce resource), and the potential for new industrial developments. The study concluded that the "do-nothing (trend) option" could end up with serious environmental and developmental problems, including massive resource depletion. Even in the "moderate growth option", the MMI would be facing difficulties in the year 2025 to accommodate the inhabitants and the associated activities. The lesson derived from this little exercise was the immediate need for the preparation of a new "Integrated Coastal Master Plan" that would reduce the uncertainties in subsequent developments and would guide to a "desirable" future for the MMI area.

The study further pointed out the necessity of "a largely improved management structure" for achieving a sustainable level of development in the Izmir area. The structure that is needed is incorporated in the concept of Integrated Coastal Area Management (ICAM). The development of an ICAM programme has three stages. These are: a) initiation, b) preparation (planning), and c) implementation. For the case of MMI, the initiation stage was believed to have been completed, based on the "clearly observed willingness of the authorities to change the present situation", the outset of the sewerage project, and the activities undertaken within the

framework of CAMP “The Bay of Izmir”. The study then discussed some of the crucial issues that should be taken into consideration in the second stage, which was the preparation of the integrated master plan of the area. These issues were described under the headings of “development strategy concerns”, “environmental policy concerns”, “protection and recovery of the Izmir Bay”, “protection of fresh water resources”, “air pollution control and abatement”, “soil protection”, “sound use of limited land resources”, “areas of particular value”, and “natural risks and hazards”. Several of the proposals made under these headings were included in the final recommendations of the study (See Appendix). The concept of planning aimed at “curbing the persistent trends of excessive concentrations of people in the MMI area” (especially in the coastal belt), and wished to divert further urbanisation and industry to new centres outside the MMI area. Various actions were proposed to improve the present state of environmental management and conservation. These included the use of various economical instruments such as pollution charges, marketable permits, subsidies, deposits and return systems. Many of these instruments had been already in use in Turkey since the enactment of the Environmental Law in 1983. However, implementation of the instruments (such as the penalties against damaging and polluting the environment) had not been successful enough to assure expected benefits.

The study also proposed the preparation of an EIA study for each project and activity that would have a serious potential for environmental pollution and damage. According to the Environmental Law of 1983, the by-law for EIA should have been in force by 1984. However, this process was delayed until 1993 when the by-law on EIA, requiring that an environmental impact statement be prepared for every large scale polluting activity and development, was finally approved and became functional.

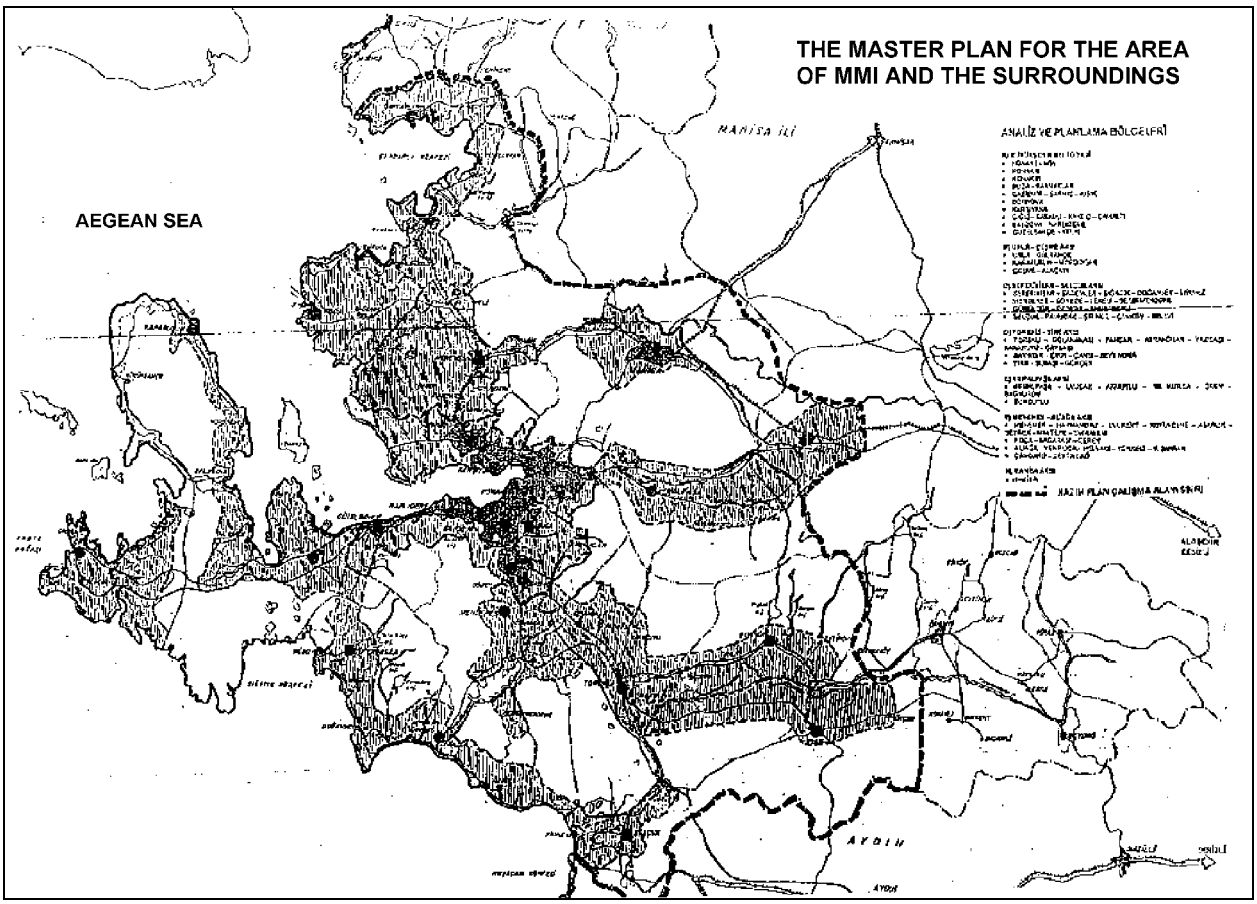
Three options were mentioned for the spatial boundaries to be adopted for the integrated coastal area management. These were called the Izmir Metropolitan Region, Izmir Province, and the boundaries of MMI. The MMI boundaries are too narrow for effective control of all activities that would impact the MMI area. The area that was referred to as the Izmir Metropolitan Region (Figure 16.3 in the study report) appeared to be the most appropriate choice. However, it included the Kusadasi Municipality, which is in the Province of Aydin and a part of the Province of Manisa.

Nowadays, a strategic planning effort is in progress (*Studies for the Master Plan of the whole of MMI and its Surroundings*). This planning activity covers more or less the area that is called the Izmir Metropolitan Region in the study report, minus those two parts that are not within the Province of Izmir (Figure 2).

The study urged the establishment of an Integrated Coastal Management Committee as the basic prerequisite for the successful implementation of the ICAM process. Since no provisions were present for the creation of such a committee in the existing administrative system of Turkey, an urgent study was proposed to examine how to accommodate the Integrated Coastal Management Committee within the prevailing legal framework and institutional system. Creation of such a new body (named the Coastal Council), to be responsible for the process of ICAM, was already proposed in a slightly earlier study (1990-91) funded by the METAP of the World Bank (Marzin, Harrington and Ongan, 1991).

Finally, the study provided a discussion on the elements of the Integrated Coastal Master Plan for the Area of Izmir, including the need for the new plan; the methodological approach, goals and tasks for its preparation; the methodological basis and phases of the plan; and the organisation of work. Furthermore, it described the need for a comprehensive database and the use of Geographic Information Systems (GIS) to support ICAM.

Figure 2: Area covered by the master plan study in progress (the bold line is the boundary)



2.1.7. Integrated Management Study for the Area of Izmir – Recommendations

One of the most substantial outputs of the CAMP "The Bay of Izmir" was the study report entitled "*Integrated Management Study for the Area of Izmir*", which was said to be "an umbrella document" integrating the results of activities carried out within the framework of CAMP "The Bay of Izmir". The report summarised the state of the natural resources and the process of development, development/interaction interactions, the existing process of decision-making in the first part, and the elements of integrated coastal and marine management in the second (See Section 2.1.6 above), and the conclusions and recommendations in the third. In this final part, a set of recommended measures under two headings, "Urgent Measures" and "Middle-Term Measures", were described. The shortened versions of these recommendations are listed in the Appendix. The "Urgent Measures" consisted of a list of twenty specific actions recommended as immediate follow-up activities. Most of these were control measures for curbing the adverse environmental effects of the existing economic/development activities like industry, urbanisation, agriculture and marine transportation. Also included were recommendations for better environmental and resource management and protection. Some of these measures are described later in the section on "follow-up activities". The "Middle-Term Measures" (for the following five-year period) included monitoring programmes for environmental quality in general and the water quality of the Bay of Izmir in particular, proposed legal and administrative changes and developments, institutional arrangements, and a variety of planning proposals including the "Integrated Coastal Master Plan (ICMP) for the Izmir Area".

2.2. Improvement of Institutional Capacities of ICAM

Various tasks and responsibilities for coastal area management in Turkey are distributed among the institutions of the central government and the municipalities (Özhan, 1996). There exist units concerned with coastal management within the Ministries of Environment and Public Works and Settlements. However, these units are small and their responsibilities cover only a few issues within the wide scope of coastal management. For example, the Ministry of Environment deals with the aspects of environmental management and nature conservation, and it is the key institution for the implementation of EIA. The Ministry of Public Works and Settlements, on the other hand, is responsible for the enforcement of the Shore

Law, mainly the issues of public access and the setback distances for construction. It also plays a role in territorial planning as it approves the land-use plans. All development issues in the coastal zone in Turkey have traditionally been dealt with a sectoral approach. Although there exists a weak mechanism for horizontal integration in the decision-making process, there does not exist a formal institution that is empowered with this task. The contribution of the central government to coastal management at the local scale is provided through the provincial offices of the ministries that operate under the provincial governors.

The role of municipalities is two-fold. One of these is land-use planning. The second role is provision of the necessary infrastructure and environmental management within the municipal boundaries.

The most significant contribution of the CAMP "The Bay of Izmir" to institutional capacity improvement was the proposal to establish an Integrated Coastal Management Committee at the local level for the implementation of the ICAM process. As it was stated earlier, there were no provisions in the administrative system of Turkey for the creation of such a committee. A similar administrative body (named the Coastal Council) was also proposed in a slightly earlier study (1990-91) funded by the METAP of the World Bank (Marzin, Harrington and Ongan, 1991). Such a local institution responsible for integrated coastal management could enhance significantly the horizontal and vertical integration which are essential for successful coastal management. However, there is also a need for a co-ordinating institution in the administrative system of the central government for ensuring horizontal integration at the national level on one hand, and for supporting the integrated coastal management efforts at the local level on the other.

Another contribution of the CAMP "The Bay of Izmir" to the improvement of the institutional capacity is observed in the capacity building within the MMI, in the Departments of Planning and Public Health, throughout the project (e.g. GIS lab, database).

2.3. Application of Tools and Techniques of ICAM

There are several tools and techniques that have been used in coastal management in Turkey. These include: economic development plans; sectoral development plans; land-use plans; protected area management; laws, regulations and penalties; Environmental Impact Assessment (since 1993); protection of endangered species; UNEP's Regional Seas Programme (Mediterranean Action Plan and the Black Sea Strategic Action Plan); and the unions of municipalities located around enclosed coastal bodies (Özhan, 2001).

The use of EIA in Turkey started in 1993. The EIA study that was carried out in 1989 for the Izmir Sewerage Treatment Project in the scope of the Phase I of CAMP "The Bay of Izmir" was one of the first examples of its kind. Thus, it provided an example for the future studies. The provision of the necessary legislation for application of EIA for important development projects that have a significant potential for environmental degradation and risk for human health was one of the recommendations of CAMP "The Bay of Izmir". However, the by-law on EIA was already in force before the final report of the study was published.

The concept of "integrated management plan" that has been strongly proposed for the Izmir area in the CAMP "The Bay of Izmir", as the second phase of the ICAM process, was a new one for Turkey, and thus it was a contribution. The details of the management plan, which were discussed in the study report, provided a good framework to follow for similar planning efforts. The use of the computer database and the GIS as an aid to physical planning was also a pioneering effort in the early 1990's. Today, the use of GIS in Turkey for several purposes has significantly widened.

The proposal for better use of the economic instruments for environmental management in the coastal zone was also a valuable contribution. Economic instruments have been used in Turkey for environmental management for a considerable period of time. However, their effective implementation has always been a problem.

2.4. Formulation and Implementation of Relevant National Policies and Strategies

Since CAMP "The Bay of Izmir" was a project at the municipal level, its contribution to national policies and strategies was limited.

2.5. Dissemination and Exchange of Experience Contributing to the Formulation and Implementation of Policies and Strategies at the National Level

It was not possible to identify an impact of CAMP "The Bay of Izmir" to the formulation and implementation of policies at the national level.

2.6. Training and Capacity Building of Local and National Experts

In Phase I of CAMP "The Bay of Izmir", three expert meetings were organised. These were the expert meeting on the recovery programme of the Izmir Bay (30 March-1 April 1988, Split), the PAP expert meeting on common methodological framework for integrated planning and management of the Mediterranean coastal areas (Izmir, 29 June – 1 July 1988), and the policy meeting of the representatives of the Turkish national authorities, Izmir, MEDU, MED POL, PAP and the World Bank (Split, 9-11 March 1989). A number of local planners also participated in the second meeting. Furthermore, a training course on the methodology of integrated planning (December 1989) was organised. Twenty trainees from Izmir institutions, which will take part in the preparation of the Integrated Planning Study of the Izmir Area, participated in this course.

One expert was sent to attend a 6-month UNITAR training programme (Geneva, October 89 – April 90) on the application of GIS in environmental planning.

The important capacity building activity in CAMP "The Bay of Izmir" was the establishment of a GIS lab in the premises of the MMI, with MMI providing for the necessary hardware and other technical needs, and the training programme series on the use of GIS and the software pcARC/INFO given to a local team comprising of seven members of MMI and one research assistant of Dokuz Eylül University. Five missions were carried out by the PAP consultants in Izmir from June 91 to December 91 for different parts of the training programme. In the PAP/RAC report describing the *GIS Training Programme* (September 1992), it is stated that the local team is well trained and ready for future autonomous work.

Parallel to the training activity, a regional GIS database for the area of Izmir was prepared. The database covered environmental, socio-economic and resource characteristics of the study area.

2.7. Co-operation, Exchanging Experience and Offering Results, Methodologies and Procedures to Other Regions at the International Level

Co-operation and exchange of experience at the international level in CAMP "The Bay of Izmir" was limited to the transfer of the experiences of PAP/RAC and MEDU of the Mediterranean Action Plan, and those of the foreign experts to the programme. This CAMP was later used in a comparative study of the integrated coastal management projects in the Mediterranean.

3. Description of the Follow-up Activities

There were no follow-up activities formulated and described at the end of the project, defining the main actors and describing the source of funding for implementation. Instead, there was a lengthy list of proposed measures, which could be considered as weakly stated follow-up activities (proposed). These are described in the Appendix.

One follow-up activity after the conclusion of CAMP "The Bay of Izmir" was the translation of a summary of the report *"Integrated Management Study for the Area of Izmir"* into Turkish. The translation was carried out by two employees of MMI who took active parts in the CAMP. It was finished in March 1995 and widely circulated.

Over a period of more than 8 years since the conclusion of CAMP "The Bay of Izmir" in September 1993, there have been numerous developments on the wide range of issues that were addressed in the recommendations. However, it is almost impossible to relate many of these developments to the direct impact of the project.

Most importantly, a significant effort has been recently started for planning studies (*Strategic Spatial Development Plan for Metropolitan Izmir and the Immediate Surroundings*). The earlier planning effort

carried out by Dokuz Eylül University that started somewhat after the conclusion of CAMP "The Bay of Izmir" has not been successful to produce an accepted plan.

The Master Planning Office of MMI is carrying out the ongoing planning effort with contributions from national advisors. The area that is covered in the planning study, as shown in Figure 1, is wide enough for successful coastal management around the Bay of Izmir. The planning strategy is similar to what is described as the "Integrated Coastal Master Plan" in the *Integrated Management Study for the Area of Izmir*. It aims to prepare a strategic development plan at the scale of 1:100,000 for the large area shown in Figure 2, and then the Master Plans (Environmental Profile Plans) at the scale of 1:25,000 for MMI and other urban sub-regions where development activities concentrate. It is interesting to note that the concept of strategic planning is not yet an accepted practice with a legal basis in Turkey.

There has been no development so far concerning the recommendation "to establish an Integrated Coastal Management Committee as the main decision-body responsible for the development of the Izmir area". Very recently (November 2001), Local Agenda 21 Izmir formed the "Izmir Coastal Area Management Group (ICAMG)" in the context of the UNDP-supported project named "Implementation of Local Agenda 21 in Turkey". The present composition of ICAMG includes representatives of municipalities, state departments, local universities, NGO's and the private sector.

One of the tangible products of CAMP "The Bay of Izmir" was the GIS database including spatial data on environmental and resource characteristics of the Metropolitan Municipality of Izmir (MMI) area. This database was proposed to be "the core of the information system for macro-level GIS applications in supporting planning activities within the context of the Integrated Coastal Area Management (ICAM). The study proposed that the GIS database be extended in content and the area of coverage, and updated in time. Unfortunately, neither the use of the database nor of GIS has continued within MMI as it was expected at the conclusion of CAMP "The Bay of Izmir". GIS was later used sporadically in mapping applications for the area of Izmir.

4. Assessment of the Management of the CAMP

While assessing CAMP "The Bay of Izmir", it should be kept in mind that this programme was among the first group of projects and probably the earliest in completion. Thus, the Izmir Bay project was one of the first experiences for the managers of CAMP projects. On the other hand, it was also a rather early experience for both the state departments of Turkey (such as the Ministry of Environment) and the Metropolitan Municipality of Izmir.

In the project, there were basically two types of activities. One type was assessments and studies on several important issues, such as the pollution of Izmir Bay, land use, population dynamics and future development, institutional arrangements, integrated planning, etc. The second type of activity was capacity building, which comprised basically the training of MMI employees on the use of GIS for planning and development of a GIS database. Assessments and studies were carried out by foreign and Turkish experts individually and in teams of two or three. Although there were a few expert meetings organised from time to time, the level of co-ordination was probably not high enough. The number of experts who got involved in the CAMP "The Bay of Izmir" was indeed not too many. Obviously, this was a limitation dictated by the resources available.

One problem of the management of CAMP "The Bay of Izmir" is observed in the part of the project that studied the pollution of Izmir Bay. Marine pollution is a highly technical subject, and management of a study on this issue requires technical competence. Although almost the whole length of Phase I of the programme was devoted to water quality of Izmir Bay, the outcomes of the effort were not impressive. Except for the field-monitoring of water quality that took place for one year in 1988, all other studies on the subject were "assessment" type, based on the data and information available. Since the available data and information was not enough, the assessments had to be shallow, either not conclusive or not sufficiently persuasive.

CAMP "The Bay of Izmir" can be considered as a relatively good example for co-operation between national and local authorities, although not too many national and local authorities were involved. On the national side, it was basically the Foreign Affairs Department of the Ministry of Environment. Other departments of the same ministry were sufficiently involved in the project. On the side of the local authorities, the only institution was MMI. The inclusion of the important district municipalities, such as Karşıyaka Municipality in the project (at least in the training component) would have been a positive attribute.

Considering the participation of the other actors of ICM, however, CAMP "The Bay of Izmir" is not a good example. Among the activities completed in the scope of the project, no single activity has been observed that included public participation. Perhaps the only occasion that allowed participation of NGOs, the private sector and universities in a wide sense was the meeting organised at the end of the project (September 1993). Many reputed national experts were not involved at all in the project. This was remarkably evident during the concluding meeting of CAMP "The Bay of Izmir". During this meeting, after the national co-ordinator of the project said "At least we learned what integrated coastal management is at the end of this project", a response from the audience was heard "That is good, but we knew it at the start of the project!".

Funding of CAMP "The Bay of Izmir" fell short, as the resources expected from the World Bank could not be realised. Many activities (more than half) that were planned initially were not carried out due to this reason. It is also interesting to note that the World Bank (METAP) had been funding an assessment study on "Coastal Zone Management in Turkey", that had started slightly earlier than CAMP "The Bay of Izmir". No apparent interactions could be found among these two projects.

5. Shortcomings and Strong Points of the CAMP

5.1. Strong Points

When reviewing CAMP "The Bay of Izmir", one observes several strong points of the programme. They include:

- Selection of the water quality management of Izmir Bay as one of the main issues. This was definitely the most important coastal management issue of the Izmir area at the time of the project. It is still the most important issue today.
- Achievement of a level of vertical integration in the project by bringing the Ministry of Environment and the Metropolitan Municipality of Izmir.
- The use of a number of modern concepts and management tools, such as the Integrated Coastal Management Plan, EIA, and GIS.
- Introduction of the integrated coastal area management process to the Turkish authorities through the Izmir Bay project.
- The capacity building throughout the project (GIS Lab, the training programme on the use of GIS), and the new information obtained about the water quality of Izmir Bay through the one-year long monitoring.
- Active involvement of several employees of the MMI in the project. This generated a favourable atmosphere in the planning and public health departments for elevating the level of "environmental thinking" in the daily undertakings of these departments.
- Production of several documents that contributed to the expertise in the country on planning and environmental management.

5.2 Weak Points

The review highlighted a few weak points of CAMP "The Bay of Izmir". These are briefly discussed below.

Firstly, the scope of the project as depicted from the sections on the objectives, outputs, benefits and the list of activities in project agreement document (See Sections 1.4 and 1.5 of this review) was rather ambitious, considering the length of the programme and the available resources (including the funding that was expected from the World Bank). As the consequence of this problem, more than half of the project activities could not even be started. Some of the activities that were taken during the project could not be dealt with in depth (enough to produce substantial results). The most important example to such activities is the water quality management of the Bay of Izmir.

The second weak point of CAMP "The Bay of Izmir" is found in the type of the tangible outcomes of the project. Study or assessment reports prepared by the experts of whom more than 50 % are foreign national, and the final report of the project (*Integrated Management Study for the Area of Izmir*), which list numerous recommendations on a wealth of issues form a great part of the outcomes. Apart from the GIS training and generation of database, there are no products of the "action" type. Some of the recommendations in the list indicate various tasks given to authorities that will never have the chance of even reading the project report.

The third weak point of CAMP "The Bay of Izmir" is the absence of a well-defined follow-up programme that assigns responsibilities to the respective institutions (with their consent) concerning the follow-up activities to ensure the implementation of the most important recommendations. The follow-up programme should have indicated the source of funding for the follow-up activities. The recommendations alone have academic value, and this is not enough to ensure implementation.

The fourth weak point of CAMP "The Bay of Izmir" is the low level of integration of the project activities. The two most important issues addressed by the project are the water quality of the Izmir Bay, and the planning and management of development in the area of Izmir. There is a strong (and important) interaction between these two issues. This could not be clearly identified by the project as the two issues were dealt with by different groups of experts.

The last weak points identified in the project are in relation to the experts used by the project and the level of involvement of other stakeholders (public, NGOs, private sector). The project could have been relatively more successful if the formulation of the project, and its execution, involved more local experts.

6. Suggestions for Improvement of CAMP Formulation, Implementation and Follow-up Activities – Lessons Learned

Based on several observations made during reviewing CAMP "The Bay of Izmir", it is believed that the followings will improve the level of impact of the similar programmes to be launched in the future.

a) Formulation

- Before starting the formulation of a big project like CAMP "The Bay of Izmir", it would provide benefits if the project is publicly announced at the national scale, and experts and other interested parties are invited to contribute to the project formulation. A small workshop at the end of this process to be participated by a group of invited experts and representatives, could be helpful to finalise the scope and objectives, together with the expected products and benefits of the project.
- Collaboration with the regional scientific and professional networks could also be sought. It would often be cost effective if contributions of the competent networks could be received for the formulation (and implementation) of a project.
- The formulation of the project should target that the expected products include as many "actions" as possible. The project should aim to start the process of the change (such as the implementation of the results at a pilot scale) during the duration of the project, rather than recommending at large that the process be started and the results are implemented.
- In line with the previous suggestion, the scope of the project should be kept modest enough to allow significant progress along with the main goal.
- The success of the project would be more ensured if the objectives are based on improvements of the current practices within the limitations of the existing system, rather than changing the system significantly. For example, creation of an Integrated Coastal Management Committee for the Izmir area, and implementation of an Integrated Management Plan both required legal basis in the early 1990's, and they still do today! They might not have been achieved even if MMI were strongly behind these recommendations.
- The "criteria for success" of the project should be clearly defined in the project documents, indicating all tangible products targeted within a specific time frame.

b) Implementation

- The use of local experts, as many as possible, in the implementation of the project has several advantageous both during implementation and follow-up phases of the project. Assignment of the local experts to various tasks should be done carefully and through a transparent process, in order to achieve the greatest success.
- The implementation of the project should follow an "action" based approach, as indicated in the group of suggestions for the project formulation phase. For example, if the major goal of a project is the creation of an "Integrated Coastal Management Committee", lobbying activities for the national government and the parliament (the Environmental Commission) should be an integral part of the project. Such a project should target at least that the draft legislation, which would set the bases for the

formation of the Integrated Coastal Management Committee, is prepared and submitted to the Parliament for starting the enactment process.

- It could provide benefits if the progress of the project is made public from time to time by using media coverage and this progress together with the interim findings are discussed in public meetings/workshops that are periodically convened.

c) Follow-up

- The follow-up phase should be clearly described in the final report by providing the programme of well-defined activities in a certain time frame. The lead institutions for the follow up activities should be assigned after consultations.
- The sources of funding for the follow-up activities should be defined and if possible secured.

7. Summary and Conclusions

CAMP "The Bay of Izmir" was a significant project for Turkey, as it was the biggest effort of its type ever carried out. It contributed academically to the progress of environmental management in general, and of integrated coastal management in particular, in Turkey. At the level of the MMI, it was instrumental for bringing a new approach to planning, although the progress of the approach after the conclusion of the project was limited due to several reasons. These included the change of the administration of in the MMI following the political elections, and displacement of several experts of MMI, who took part in the project, to other assignments.

At the national level, Turkey went through two major and one minor economic crisis during 1993-2002. During this period, the country was ruled by a sequence of numerous coalition governments. In such a political and economic environment, it has not been possible to give sufficient emphasis to further development of integrated coastal management in Turkey. Hence, there has been little progress in the implementation of two most important recommendations of CAMP "The Bay of Izmir" (creation of the Integrated Coastal Management Committee, and the Integrated Coastal Management Plan for the area of Izmir).

CAMP "The Bay of Izmir" was among the first group of projects carried out by PAP. Experience has grown significantly over the decade that followed, through several similar projects in two successive groups. The Malta Workshop, which will convene during 17-19 January 2002, is believed to be a very timely meeting for reviewing the achievements and failures of the past projects, and discussing the "lessons learned". This meeting will no doubt contribute to improvement of the formulation and implementation of the future CAMPs and similar projects.

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APPENDIX: Recommendations of CAMP "The Bay of Izmir"

Urgent Measures

- Modernisation, technological transformation and/or relocation of polluting industries.
- Closing down gradually of those industrial units, which are not able to comply with anti-pollution measures.
- Preventing further concentration of industries; stimulating the existing ones to move from the Bornova Plain.
- Establishing a consistent public control over the use and transaction of land, provision of serviced land for the low-income pollution.
- Controlling the urban growth along the development axes in the bordering areas of Izmir.
- Protecting the Tahtali Dam and its catchment areas, establishing effective control over the use of groundwater sources.
- Enlarging and improving the existing Industrial Discharge Control Programme.
- Stopping of illegal wastewater discharges.
- Preventing the expansion of farming over ecologically fragile and erodable areas, as well as further inappropriate vegetation clearance for construction.
- Encouraging afforestation activities and programmes.
- Monitoring the use of fertilisers in agriculture, especially those at Menemen.
- Creating green belts and/or sanitary protection zones.
- Protecting the remaining undeveloped and/or less densely developed coastal areas from inappropriate uses.
- Preventing the expansion of salt works towards the Homa Dalyan area.
- Preparing an Environmental Impact Assessment (EIA) of the proposed discharge of treated wastewater through the old bed of the Gediz River.
- Examining alternative locations for port facilities and making the final decision on port location before the Master Plan is started.
- Preparing a programme for curbing air pollution. It is necessary to extend the network of measuring stations and set up a comprehensive monitoring Programme.
- Improving the existing day-to-day monitoring programme of the Bay aquatorium.
- Setting up a more efficient co-operation and co-ordination among the responsible national and regional institutions, as well as universities and institutes involved in research and monitoring the state of environment.
- Strengthening the municipal departments responsible for urban planning and pollution control in the area.
- Preparing a study of institutional arrangements to support integrated management of the Izmir area, and examining the establishment of a single authority.
- Preparing a study on the application of economic instruments for environmental management.
- Continuing the activities related to the establishment of the GIS database to support the Master Plan preparation, setting up a GIS Steering Group.

Middle-term Measures (to be Taken in Subsequent the 5-year Period)

A) Monitoring and Completion of Environmental Knowledge

- Building up an efficient system of pollution control and monitoring of the quality of environment.
- Launching a long-term co-operative programme of research and systematic collection of data concerning all relevant marine parameters.

B) Legal and Administrative Measures

- Standardising the quality of human environment at the local level and upgrading the regulations.
- Setting up a legal basis at the national level for the preparation of EIA studies.
- Changing the present system of allocation of funds collected from pollution charges in Izmir.
- Building at the local level of an accurate database on land and property market conditions and urban growth.
- Developing an efficient mechanism for taxing land value gains resulting from public investments in infrastructure, land registration and titling at the MMI level.
- Setting up a system of pricing of communal services at the MMI level in order to rationalise the use of natural resources.
- Providing a legal basis for establishing Specially Protected Areas (SPA) national level.

C) Institutional Arrangements

- Establishing an Integrated Coastal Management Committee as the main decision-making body responsible for the development of the Izmir area. The Committee must be established before the preparation of the Integrated Master Plan is started.

D) Planning Actions

- Commencing a comprehensive study of the protection of water sources and of possible long-term changes of their quality.
- Preparing an EIA for one or two alternative locations of the submarine outfall in the Middle and/or Outer Bay.
- Preparing development/environment scenarios at the regional level.
- Commencing a study to examine the possibilities for a gradual substitution of the sources of energy currently in use with renewable energy sources.
- Preparing a hazard assessment and risk management study for major industrial and energy installations, and for the transportation system.
- Preparing a study of the quality of agricultural land in the wider area of MMI.
- Preparing a study with the aim of identifying the sites and the buildings of historic and architectural value with special reference to the conservation and revitalisation of the urban core.
- Preparing a study on possible implications of the expected climate change.
- Making the seismic and seismo-tectonic macro and micro zoning of the entire MMI area.

E) Integrated Coastal Master Plan (ICMP)

- Preparing the Integrated Coastal Master Plan for the Izmir area over the next 3–5 year period.
- Starting immediately the preliminary actions leading to the definition of relevant Terms of Reference for the preparation of the ICMP.

PART III:
Keynote Papers

Integrated Coastal Area Management Projects: Beyond Interventions

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1. ICAM Initiatives in the Mediterranean and the World

Coastal areas constitute a unique geographic space from an ecological and human development perspective. As a result their management has been a priority focus of public policy particularly from a sustainable development perspective. The Mediterranean is a typical example.

Mediterranean coastal zones are characterised by high concentrations of population and economic activities which lead to conflicts over the use of resources, intensive use of land, urbanisation, artificialization of the coastline and environmental degradation. In addition, there is increasing spatial imbalance in development between dynamic coastal areas, heavily populated and characterised by intensive levels of land use and consumption and often declining inland (and marginal) areas in terms of population and economic activity.

Urbanisation in the Mediterranean is expanding, characterised by high densities of population and activities concentrating in coastal areas, degradation of the natural environment and of the quality of life. The Mediterranean is the world's prime tourist region. This tourism is increasingly concentrated on the coast. The majority of tourist areas face also intensive development and strong competition with other uses over coastal resources. The development of tourist activities has often significant environmental consequences which might ultimately affect tourism itself: occupation of land surfaces, consumption of water resources, pollution and waste, loss of habitat for wildlife species, abandonment of traditional activities (agriculture, fishing, etc.), and deterioration of cultural values and heritage.

Conflicts over the use of coastal resources are increasing. The demand for water is increasing due to the growing rate of urbanisation and expanding needs for irrigation and other purposes. There is a parallel increase of demand for domestic consumption as a result of rising standards of living and the development of the tourist sector, particularly on a seasonal basis coinciding with peaks in irrigation. Water consumption and waste production is high in areas of population and economic activities concentration (on the coastal zones). This implies that pollution problems are also mostly evident in coastal zones. The increasing urbanisation and built-up of natural areas is often accompanied with increasing runoffs of waters into the sea and increasing risks of flooding. Sewage is often discharged into the marine environment without treatment leading to pollution "hot spots".

It is evident that the multiple interests and conflicts which are experienced in the Mediterranean coastal zones require attention and the adoption of a pro-active stance in policy making.

Integrated Coastal Area Management (ICAM) is a continuous, proactive and adaptive process of resource management for coastal areas.

ICAM aims to:

- Strengthen cross-sectoral co-operation;
- Preserve and protect the productivity and biodiversity of coastal ecosystems, through preventing habitat destruction, pollution and overexploitation; and
- Promote rational development and sustainable utilisation of coastal resources.

In this context, the emphasis is on the management of coastal resources, their uses and the impacts of development on economy, society and the environment.

ICAM has been brought forward to the public agenda as a priority issue of regional significance. A growing concern about the degradation of the environment led to the establishment of regional level co-operation in the Mediterranean in the context of the Barcelona Convention (1975) and the development of programmes targeted at monitoring, assessing and improving the natural marine environment. Early enough though it became apparent that problems of environmental quality in the marine environment are linked to the human activities many of which are concentrated along the surrounding coastal areas. So, environmental protection was linked early to the control of development and environmental management of coastal areas reflected in MAP activities on Integrated Coastal Area Management (ICAM).

The Euro-Mediterranean Partnership offers another platform for regional co-operation in coastal zone management. It was established in Barcelona (1995) as a joint initiative by 27 states of EU and around the Mediterranean. The environment has been recognised as one of the fields to increase co-operation and as an important dimension for the achievement of sustainable development in the Mediterranean. The Short- and Medium-Term Priority Environmental Action Programme (SMAP), adopted by the Ministerial Euro-Mediterranean Conference in Helsinki in 1997 identified five priority fields of action have been for SMAP, one of which is Integrated Coastal Zone Management (ICZM). SMAP envisages among others the development and implementation of national or demonstration plans.

The Mediterranean Environmental Technical Assistance Programme (METAP), launched in 1990 by the World Bank (WB) and the European Investment Bank (EIB) in partnership with the European Union (EU) and the United Nations Development Programme (UNDP), provides funds to eligible Mediterranean countries, in the southern and eastern shores, to prepare, among others, programmes and investment projects. In 1996-97, an evaluation of coastal management initiatives in the Mediterranean region was prepared by the World Bank in association with the Priority Actions Programme Regional Activity Centre (PAP/RAC), providing recommendations for future implementation of coastal management projects in the Region.

In general, the world experience suggests that ICAM is still a national level concern. The particularities of development (stage, etc.), the institutional context and the environment/ development issues on the coastal zones influence decisions on arrangements for coastal management. Overall there is extensive activity but particularly fragmented experience in terms of integrated coastal area management. Most of the concrete applications, though, are addressed at local level interventions. This can be probably explained in terms of three major factors:

- An inherent difficulty stemming from the structural characteristics and complexity of coastal ecosystems and issues transcending conventional science and policy boundaries (land and sea interaction).
- The difficulties encountered in delimiting in spatial terms the policy space (the coastal zones) characterised by strongly interacting natural and human ecosystems, a multitude of conflicts and overlapping patterns of spatial distribution of natural; and socio-economic processes, the superposition of complex cross-sectoral linkages and layers of administrative responsibility.
- A cautious -hesitant- approach in a new policy theme with cross cutting issues which require new “integrated” approaches, which are normally difficult to be tested over established sectoral policy fields and stakeholder patterns.

So it is no wonder that a great deal of activity in ICZM has been devoted to special demonstration interventions or pilot projects.

2. Special Interventions in Integrated Coastal Area Management

2.1. Coastal Area Management Programmes (CAMPs)

There have been several interventions around the Mediterranean, but also in other parts of the world, in coastal management. Of particular interest are those which could be characterised, in terms of intention and/or design of intervention, as falling within the scope of *integrated coastal area management*. A number of these have been selected as examples with the purpose to highlight the objectives, the outcomes and the follow-up. Among these of special interest are a series of special interventions at the local level: the CAMPs (Coastal Area Management Programmes) developed to test the concept of ICAM and demonstrate the validity of the approach to member states and others.

Since 1989, a number of CAMPs were implemented, namely: in Albania, the Bay of Kastela (Croatia), Fuka-Matrouh (Egypt), the Island of Rhodes (Greece), Israel, Malta, the Syrian Coastal Region, Sfax (Tunisia), and the Bay of Izmir (Turkey). Recently, CAMPs in Algeria and Lebanon have started, while new projects are being prepared in Cyprus, Slovenia and Morocco.

The Bay of Kastela, Croatia

The intervention was linked to the National Project for Environmental Management of the Kastela Bay and aimed at initiating the process of environmental management in the Kastela Bay. Afterwards, the project

gained the support of the METAP, which has steered its course towards infrastructure development and pollution control.

The principal ***objectives*** of this project were:

- to complete the knowledge on the causes and consequences of pollution;
- to identify prerequisites for treatment and discharge of urban waste waters into the bay and the adjacent Brac Channel;
- to contribute to the solution of the water supply problems;
- to introduce GIS; and
- to develop a concept of urban waste water collection, treatment and disposal.

The major ***outcome*** is the construction of the wastewater treatment system in the Kastela Bay. However, this is only partial fulfilment of the project's objectives. Although many industries have been closed there was no provision for alternative employment, resulting in high unemployment in the area. Further results can be summarised as follows:

- collection of data and information on major pollution problems and ecosystem functioning, allowing formulation of policies and definition of technical solutions;
- preparation of a feasibility study for the integrated waste water collection, treatment and disposal system, prepared with the financial support of the World Bank;
- preparation of a proposals for institutional arrangements for follow-up activities; and
- increased public awareness and support, resulting in readiness to pay for improved quality of life and resource use.

Follow-up: On the basis of the project results, after its completion in 1993, the local and national authorities established an implementing agency (the "Eco Agency"), to implement the waste water management project. For the implementation of the waste water management plan a loan of the World Bank was secured.

The Syrian Coastal Region

The goals of the project were to:

- secure the protection, rational use and dynamic development of the coastal resources of Syria, namely the sea, the coastal strip and beaches, the agricultural land and water resources; and
- identify the zones of exceptional natural values, which need to be protected.

The immediate ***objectives*** of the Integrated Plan for the Syrian Coastal Region were to:

- train the national and local experts in applying the methodology of integrated planning and management;
- recommend forms of implementing relevant legal instruments and existing institutional arrangements; and
- contribute to the creation of favourable conditions for introducing and adopting the modern tools and techniques of coastal zone management.

Outcomes: The immediate measures proposed were implemented by national and local authorities, i.e. those related to sanitary protection of water resources, protection of dunes and wetlands.

Follow-up: The land-use and urban development plans were accepted officially as elements of future development, and an interministerial committee was established. Structural measures regarding liquid and solid waste management are being implemented gradually, giving priority to large urban settlements.

The following activities have been implemented based on the CAMP project:

- Establishment of a Local Environmental Unit for Lattakia;
- The Management Plan for Syria provided the basis for the development of another projects within the framework of SMAP and UNDP activities; and
- Elaboration of a Management Plan for investors.

The Island of Rhodes, Greece

Objectives

- Rational management and protection of the coastal resources;
- Introduction of integrated planning and resource management system on the island; and
- Definition of solutions to urgent environment/development problems for immediate implementation.

Outcomes

- Implementation of the Land-Based and Dumping Protocols;
- Marine pollution monitoring and control;
- Preparation of the General Master Plans for Wastewater and for Water Resources;
- Environmental sound energy planning;
- Training courses and application of GIS and EIA for the treatment plant;
- Preparation of an Integrated Planning Study for the island of Rhodes; and
- Implementation of activities for the protection of natural resources and cultural heritage.

Follow-up. There were not direct follow-up actions, however, several actions have been taken on the basis of the same priorities defined in the CAMP project. Particularly water and waste management remained the priorities of the Municipalities while several projects have been completed under the support of national funding. Furthermore the various thematic studies of the CAMP Rhodes project and the Integrated Planning Study have been used for the preparation of the Special Spatial Development Study for the Island of Rhodes.

Coastal Area of Sfax, Tunisia

CAMP Sfax deals with the area of the major industrial and commercial city of Sfax in the southern part of Tunisia.

Objectives. As the area has a large potential for future development, while there is a possibility for restoration of degraded ecosystems as well as urban and suburban areas, the CAMP for Sfax elaborated the actions to be implemented aiming at the radical change of prevailing attitudes for development. These could secure the future sustainable development of the area and the improvement of the quality of the life of the affected population.

Outcomes included the:

- implementation of a programme for pollution abatement and rehabilitation of degraded resources and areas;
- establishment of protected areas, of a National Park, and a number of recreational and tourism facilities;
- integrated management of aquifer protection and exploitation; supply and distribution of water resources; liquid and solid waste management; and
- integrated management and sustainable development of the area, with particular reference to its southern part.

Follow-up: Based on the activities realised and the results obtained, 12 fiches have been prepared in respect 12 actions that have been prioritised. For 6 of them feasibility studies and studies of impacts and financial and institutional requirements have been prepared.

National Coastal Master Plan for Israel

The Master Plan for the Israeli Mediterranean Coast is a national initiative for Integrated Coastal Area Management (ICAM), prepared and implemented by the Ministries of Interior and the Environment and national experts.

The main ***objectives*** of the plan were to prevent non-essential coastal development, to protect large sections of the coastline as nature reserves, national parks and coastal reserves, and to allocate coastal areas for tourism and recreational activities.

Outcomes: Beyond the general guidelines of the approved Master Plan, a coastal resource management plan for the Mediterranean coastline was formulated, in order to provide a comprehensive long term guide to planning policy. Specifically, guidelines were formulated for issues such as: sand supply, offshore structures, cliff erosion, special geological features, offshore rocks and natural coastal processes. Also, ecological guidelines were prepared for rare and unique habitats, rocky shore habitats, important biotic features, and areas adjacent to nature reserves. The dominant principle adopted for resource management was the definition of the intensity of development.

Follow-up. The results of Israel's integrated coastal zone management review have been applied to each and every one of the activities carried out within the framework of CAMP. Existing practices and policies are currently being reviewed by different forums and new policies and institutions are being examined. One of the most recent initiatives is a proposal for a coastal environment protection law.

Malta

The project CAMP Malta recognises the fragility of the local coastal areas and aims at contributing to national efforts towards sustainable management and environment protection in Malta. Immediate ***objectives*** of the project are identified as follows:

- Identification and elaboration of strategies, solutions, tools and actions for sustainable development, environment protection and rational utilisation of coastal and marine resources;
- Application of methodologies, tools and practices of sustainable coastal management and of Integrated Coastal and Marine Areas Management (ICAM);
- Contribution to the upgrading of the relevant national and local capacities;
- Provide for the practical application of the Project results and experiences, creating conditions for the implementation of the post project activities, as envisaged by the Project Agreement; and
- Use the experiences and results achieved by the project in other areas at the national and regional levels.

To reach these objectives the project implemented five main thematic activities: Sustainable Coastal Management, Conservation of Marine Areas, Integrated Water Resource Management for the NW area, Erosion and Desertification control management, and analysis of Tourism's Impacts on Health. At the moment of preparation of this report the project was still undergoing, so there were not yet tangible results.

2.2. The European Commission's Demonstration Programme

In 1996, the European Commission initiated a Demonstration Programme of thirty-five coastal zone management projects across the EU out of which 12 were in the Mediterranean. The objectives of the Demonstration Programme were to:

- provide concrete technical information about the factors and mechanisms, which either encourage or discourage sustainable management of coastal zones.
- stimulate a broad debate and exchange of information among the various actors involved in the planning, management or use of European coastal zones. The debate was intended to lead to a consensus regarding the appropriate measures necessary at the European and other levels of competence in order to stimulate ICZM in Europe.
- test co-operation models for the integrated management of coastal areas.

Some of the above-mentioned initiatives are described below.

Gulf of Strymonikos, Greece

The project is an EU Demonstration Programme for Integrated Coastal Area Management (ICAM) financed by LIFE, carried out by the National Research Institute for Fisheries and the Hellenic Wetland-Habitat Centre.

The ***objectives*** of the initiative were to:

- demonstrate the benefits of a co-ordinated approach in coastal area management;
- enhance environmental protection through improved management strategies and programs;
- raise public and private environmental awareness;
- establish a co-ordination mechanism for more effective ICAM;
- contribute to the formulation of EU policy for the coastal zones.

Tangible ***outcomes:***

- In-depth study of the environmental problems and characteristics;
- Promotion of environmental awareness;
- Elaboration of integrated approaches for resource management;
- Strengthening of co-operation and promotion of concerted actions.

Follow-up: The Information Centre that had been constructed during the project was donated to the local authority (Asprovalta), under the condition that they will assure financing of its future operation. The potential implementation of the planning proposals and the continuation of the operation of the Steering Committee seem to be feasible. Broader institutional changes on both national and European level will be required so as to provide legitimacy to corresponding voluntary initiatives.

Cyclades Archipelago, Greece

The Program is one of the EU Demonstration Programs for Integrated Coastal Area Management (ICAM) financed by LIFE. It concerns the development of innovative co-operation for concerted actions in ICAM in the island complex of Cyclades.

The ***objectives*** of the program included the:

- achievement of concerted actions of local actors in ICAM through the establishment of an Island Network;
- development of integrated actions based on the principles of sustainable development;
- provision of support to the local authorities in order to encounter environmental problems.

At the completion of the program the following ***outcomes*** were expected:

- Establishment of co-operation between the participants in ICAM;
- Continuation and extension of the Network;
- Development of strategies for ICAM and corresponding Action Plan for island groups;
- Guide for good practices.

***Follow–up*:** Of great interest was the viability (not exclusively economic) of the Island Network after the completion of the project. It was confirmed by all members of the Network that it was necessary not only to assure the long term viability of the Network but furthermore to expand its activities, broaden its scope and embrace more islands. Nevertheless, financial, institutional and administrative constraints inhibited the continuation of the initiative. Efforts were made by the Management Unit so as to assure future funding of the Network activities.

Posidonia Network

The Posidonia Network connects the five TERRA projects of “Athens”, “Napoli”, “Palermo”, “Taranto”, and “Barcelona” aiming at the exchange of experience and information about urban management. The project constitutes experiment planning and integrated management tools for the coastal area in order to help the interventions on the territory.

The ***objectives*** of the project were:

- at transnational level, the establishment of a methodology based on the comparative analysis of each specific local situation and to draw lessons of concern for all partners involved; and
- at local level, the achievement of a co-ordinated model of management through partnership in order to harmonise sectoral interventions by responsible authorities, local administration and private sector.

Tangible ***outcomes*** consisted in:

- the preparation of the various development plans and schemes;
- the co-operation with the several partners in the five cities materialised through protocols of intentions or through specific projects and investments agreements signed with the main actors as well as with the private sector; and
- a significant change concerning the attitude of the municipalities involved towards an active involvement in planning for the future of their area, with support from the statutory agencies.

Follow-up: The prospect of follow up of the project depends mainly on the political will of continuing the actions initiated with the project Posidonia. The process started by the teams on the territories represents only the first part of the actions that the local community should take on. Some of the interventions that have been planned during the implementation of the Posidonia project foresee a financing mechanism for their completion based agreements with other several Institutions.

2.3. Other Initiatives

But there were also other initiatives. The Mediterranean Environmental Technical Assistance Program (METAP) was launched in 1990 by the World Bank (WB) and the European Investment Bank (EIB) in partnership with the European Union (EU) and the United Nations Development Program (UNDP). In the Environmental Program for the Mediterranean, the degradation of coastal areas is considered a key issue and better planning has been identified as a possible solution. In spite of that, operations are very limited in range mostly in terms of investment project preparation and capacity building in traditional areas (waste, water, etc.). METAP has dealt with ICAM providing funds for the implementation of 18 projects in 10

Mediterranean countries. METAP integrated coastal area management initiatives include projects in Albania, Algeria (Tlemcen and El-Kala), Croatia (Cres-Losinj Archipelago), Cyprus (Akamas Peninsula), Israel (Haifa Bay), Lebanon, Morocco (i.e. Al Hoceima National Park), Tunisia (i.e. Hammamet Gulf) and Turkey (i.e. Belek beach).

In other parts of the world there is also a proliferation of programmes dealing with coastal management several of which focus on special projects. In Africa, several special coastal zone management projects have been initiated in the context of international aid, in most cases (EAF-5, IOC/FED, USAid, etc.). In other world regions (i.e. Southeast Asia) there are efforts to introduce integrated coastal zone management among the topics of international co-operation, mostly through the activities of UNEP (among the UN Regional Seas programmes, the Mediterranean being the most advanced in terms of developing co-operation activities).

Coastal Management and Tourism in Turkey: Cirali and Belek

The study included two coastal sites, Belek and Cirali, located in the broader area of Antalya in the southern part of Turkey.

The main goal of the project was to promote sustainable development in the area and particularly the conservation of bio-diversity and natural resources in Belek and Cirali coastal areas. Within this context 3 main ***objectives*** have been identified and pursued:

- Implement and monitor a Management Plan (MP) for the large -scale tourism developed area of Belek.
- Promote environmentally and socially sound development through integrated planning, traditional and alternative economic activities and nature protection in the small scale tourist destination of Cirali.
- Disseminate results from Belek and Cirali case studies in order to promote legal enforcement and regulatory development at the national level.

Tangible ***outcomes*** were:

- formulation, through a participatory process and officialization (ratification) of ICM plans for Cirali and Belek;
- establishment of inter-institutional co-ordination bodies with local participation;
- strengthen local participation and increase the capacity of local communities for sustainable development through pilot projects;
- bio-diversity conservation activities for the marine turtles in Cirali;
- establishment of monitoring systems;
- enforcement of national and international legal commitments for the protection of the coast at both sites.

Follow-up: A new project has been prepared and presented to Life Third Countries Fund under the title "Sustainable Development through Integrated Coastal Management and Local Participation - Project Cirali". The project purpose is to implement, with the participation of relevant institutions and local communities, the Coastal Management Plan and promote organic agriculture and eco-tourism. With DHKD's initiative the UCPMIE has applied to UNDP GEF Small Grants Fund and has secured financial support for the first year's activities.

3. ICAM Priorities at Regional and National Levels and the Role of Special Projects

Special interventions are favoured in early stages of policy development as issues are better understood, and defined, when highly localised, particularly, if they involve intense interaction, strong spatial concentration of conflicts, a limited number of interested actors and stakeholders. Therefore, problems seem manageable and the resources and effort required are within the capabilities of most administrative systems. In addition results can be visible if efforts are concentrated. Furthermore, it is widely thought that there is replicability of solution patterns (approaches) applicable to wider scales.

The CAMP initiative is oriented at the implementation of practical coastal management projects in selected Mediterranean countries. The overall objective of the interventions are to:

- develop strategies and procedures for sustainable development, environmental protection and rational utilisation of coastal and marine resources;
- identify, adapt and test methodologies, tools and practices of sustainable coastal management;
- contribute towards the upgrading of relevant national/ local institutional and human capacities; and
- secure a wider use, at national and regional levels and create appropriate conditions for follow-up activities.

CAMPs have been characterised by a strong emphasis on a top-down planning approach to coastal area management reflecting the structure and operation of MAP and the strong influence of urbanisation and the need for urban development control in the Region. As special interventions, CAMPs have been quite innovative in many respects, mostly used as demonstration actions of international co-operation and integrated plan making in a Region characterised by a predominance of development objectives and a strong sectoral approach to programming. In terms of follow-up, however, there has been little success reflecting not only the design but also institutional rigidities -inertia- and limited financial resources in the Region.

The Euro-Med SMAP does not have a concrete intervention on the ground yet, at least in terms of integrated coastal zone management. METAP interventions are quite narrow and targeted to infrastructure projects, so far. Since they are at the end of the programming sequence their implementation and follow-up is short, although their actual contribution to solving concrete problems might be great.

The EU ICZM Demonstration projects were characterised (by design) by a bottom-up approach, which is not a strong tradition in the Region. Their primary purpose was to assist the Commission and EU member states to develop a common platform of integrated coastal zone management.

Each project examined the operation of integrated management and co-operation procedures and their efficiency. The approach of the integrated management process in general, and in the demonstration projects in particular, follows the conventional pattern of description of the state of the environment, socio-economic characteristics, development of programs and plans, analysis of development/ environment problems, planning of management options, formulation or adaptation of plans/ strategies/ visions, implementation and monitoring.

Overall there has been little evidence, as in the rest of the world, of major successes in follow-up of ICAM interventions in the Region. Most of the above interventions have been one-shot operations, heavily influenced by the existence of external (mostly international or supra-national) initiatives and funding. Most of the interventions adopt an innovative planning approach for a coastal area, reflecting a first attempt to introduce ICAM.

In most of the cases implementation of actions was not always a major concern. So there is a general *weakness* in sustaining the initiatives after the completion of the programs. The main reasons for this have to do with institutional and economic inadequacies. The lack of “legitimacy” proves to be also a major constraint for success. In most cases changes in existing institutional structures were required for implementation of strategies, integrated plans, co-operation schemes, etc.

Implementation and follow-up is also affected by the actual design of interventions. Coastal issues and problems are complex and cross-cutting requiring the mobilisation of several key actors/stakeholders and the community at large, which are difficult tasks in a Mediterranean (pro-development, sectoral approach, top-down, high land values, intensive conflict) context. This requires long-term effort and commitment.

The majority of ICAM interventions tend to underestimate the political commitment, the organisational/ human and financial resources needed for their implementation. The complex nature of coastal problems and the ICAM process itself are the main reasons. The original –major- goals of such initiatives were broader, mostly dealing with establishing international co-operation, developing broader frameworks of co-operation or preparing investment projects, goals which stem from the primary purposes of the driving mechanisms behind these interventions. In addition, interventions were intended also to solve existing conflicts and problems in terms of coastal area management.

Regardless of the original primary purpose such initiatives in many respects were also addressed to a number of other purposes. So, special interventions, in most cases, were employed to achieve additional objectives such as:

- *Capacity building and training* for integrated management in policy making and programming;
- Setting-up model interventions for *replicating experiences* elsewhere in similar cases within the country or the Region; and

- Opportunities to apply and test *new tools* in integrated coastal area management.

In this context, there are several questions which can be raised, not only in terms of assessing the effectiveness of special ICAM interventions but mostly in view of improving eventually their capacity to meet wider objectives as it is important to consider the *potential* role of special ICAM interventions in the Region:

- What should be the scope and extent of a special intervention to qualify as a "model" and to affect decision-making patterns?
- What is the long-term viability of the interventions?
- Can they be replicated, given the particularities and complexities of each case?
- How many special interventions are needed to influence values and attitudes?
- Are they too expensive undertakings in terms of committing financial and human resources?
- What is their influence on subsequent decision-making in terms of integrated coastal area management?
- What is the most effective institutional set-up?

These raise the issues of effectiveness and efficiency of special ICAM interventions, which have to be assessed at two levels:

- the *specific*: whether issues and problems have (can) been solved;
- the *broader*: how to stimulate through ICAM a long-term strategy for coastal areas.

Both underline the necessity to place a stronger emphasis from the very beginning (i.e. design of the intervention) on the mechanisms and tools to achieve implementation and follow up.

4. Mechanisms for Integrating Special Projects in Policy Planning and Programming

Instituting a Process

Coastal management requires a long-term perspective. As a result, ICAM initiatives have to see beyond the span of their immediate financial and technical support. The critical issue is whether individual projects will produce lasting results for the project area after the termination of the current phase of the activity. This should be carefully considered from the early stages of the project and not to be left for the final period.

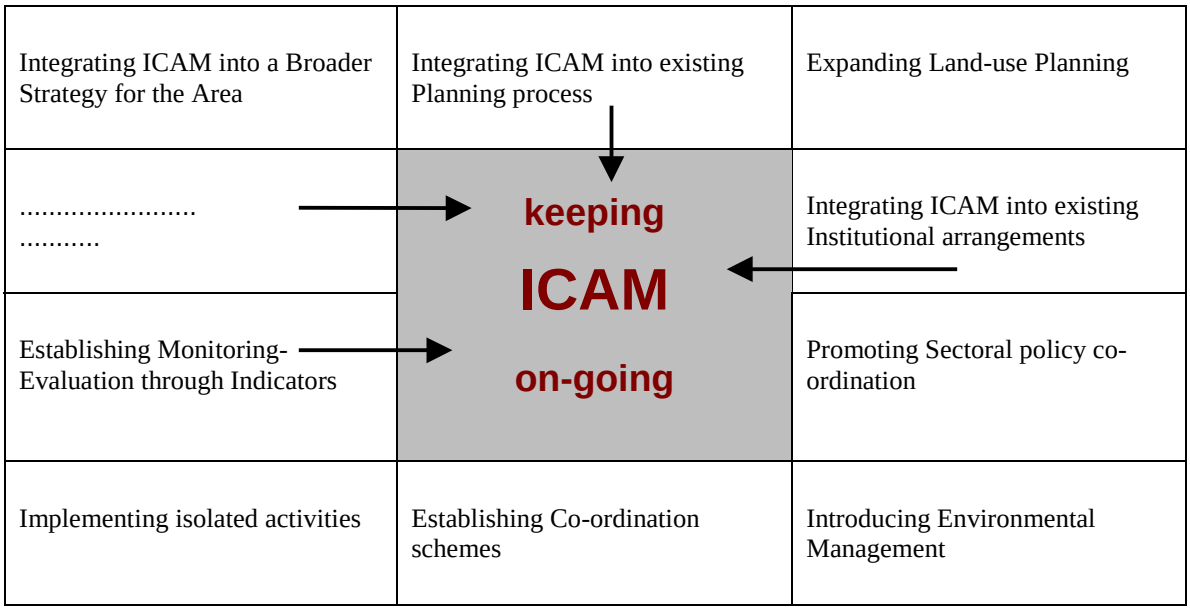
Sustainability at the project level mainly relates to the existence of follow-up initiatives. Often, most of the initiatives undertaken fail to have any continuity after the end of the project. A main constraint for this is the lack of resources, mostly financial, but also human and organisational. All this is coupled with the lack of an appropriate institutional context, which could legitimise voluntary initiatives, hindering the sustainability of project deliverables.

What is imperative is that ICAM initiatives become the catalyst for other actions and actors, through promoting among others, similar projects, or adopting strategies and structures that are in line with ICAM principles.

ICAM is a long process. ICAM pilot projects could be the starting points for such a process, which could be carried on through its integration in existing planning structures, through the promotion of the environmental management of the area, through a better sectoral co-ordination, etc. The following figure tries to demonstrate this process. Planners and decision-makers can use any of the entrances (cells) in order to "keep ICAM on going", depending on local particularities and broader factors.

It is evident from the Figure 1 that the suggested mechanisms for "keeping ICAM on going" are similar to those required for introducing and implementing ICAM. However, evidence from practice, as described in paragraph 2, indicates that most of the pilot projects that have been implemented contain elements of a fully developed ICAM program (if that could ever exist). In most cases effort has been placed on introducing ICAM in an area through selective interventions/mechanisms such as plans, concertation mechanisms, environmental awareness, better sectoral co-ordination, etc. As already mentioned these projects need to be regarded as the starting point of a longer process. Within this context all other mechanisms need to be considered for the future continuation of the activities aiming at the conservation of coastal resources and the sustainable socio-economic development of the area.

Figure 1: Instituting a process



Integrating ICAM into a Broader Strategy for the Area

Coastal management can be sought within a *local strategy* for sustainable development. This involves a *vision* about local development and decisions about managing economic development. These should be carried in the context of democratic community strategic planning, which requires participation of all major actors and the community at large. Consultation with relevant stakeholders is a key issue at all stages. The whole process is dynamic and cyclical.

Strategy formulation depends:

- *on local particularities;*
- *on broader regional and national conditions* – i.e. existence of a national institutional framework, economic opportunities/constraints arising from the broader region, etc.

The formulation of a Strategy may need to address issues which have an impact on the management of the coast but which fall outside of the authority of the people participating in the process since:

- the source of the problem lies outside the coastal area; or
- the issue can be dealt only with the measures or legislation at a national or supra-national level; or finally
- the issues relate to other policy areas over which the people involved have no control.

In such a case, external factors have to be introduced as driving forces together with internal factors and developments.

Integrating ICAM into Existing Planning Processes

In establishing an integrated management system for coastal zones it is necessary to adopt a pro-active approach. In this context, *planning* acquires a special role in establishing a process of governance and a strategic framework of goals, policies and actions in the form of a strategic integrated management plan which can be specified in spatial terms and takes action by considering in advance medium and long term anticipated changes.

Planning is a cyclical process following a sequence of basic steps from analysis to synthesis and action which for the purposes of these guidelines can be distinguished as follows:

- Initiation;
- Analysis of existing situation;
- Identification of conflicts/opportunities;
- Identification of goals and alternative courses for action;
- Development of strategy;

- Implementation;
- Monitoring and evaluation.

This process is cyclical allowing for periodic review, assessment and revision of goals, strategies and policy priorities and measures. The above steps are indicative and outline a typical process which has to be adjusted on the basis of the specific situation at stake.

Expanding Land-use Planning as a System of Regulating Human Activities

Land-use planning, zoning and building regulations, when properly implemented, define the shape and nature of coastal development. These can be organised as a form of policy statements (principles and rules) or even put in spatial terms in the wider context of a **Master Plan** to guide the intensity and extent of development of human activities in various sub-areas. Detailed area specific Master Plans (for priority zones), which include proposals for land and sea use where sectoral policies and programmes of action related to the development and protection of the resources of the area are well integrated, could be useful.

- *Urban land-use and development control:* the approaches can be analysed in (i) a system in which individual development choices are decided on their own merits, coinciding with guidelines contained in planning documents and other relevant considerations; and (ii) a zoning system, in which is permitted the development of certain and predefined activities. Detailed regulations as far as land and building are concerned should be part of a broader land-use strategy.
- *Building regulations* should ensure: (i) environmentally-friendly building; (ii) structures resistant to environmental hazards; and (iii) enhancement or preservation of the aesthetic quality of the surrounding landscape (with the wider sense).
- *Zoning* has a particular significance in hazard areas, for example shoreline exclusion or restriction zones and other critical areas. Relatively small areas, clarification of the pressures/conflicts and public support are preconditions for successful implementation. Identification of the area in which all types of development are prohibited should be combined with a detailed management plan incorporating more positive actions.

The definition and spatial delimitation of several layers of interacting coastal areas can assist in establishing linkages to local planning. Various physical geographical (geomorphology, hydrology, etc.) and ecological factors (terrestrial and marine ecosystems), human activities and uses of land (type and intensity of development) as well as on institutional factors (administrative and legal framework regulating development and use of space) can be employed. It is possible to consider three basic layers initially:

- a *critical zone* or a narrow band of land and sea a few hundred meters wide, adjacent to the shoreline, usually of highest ecological value and subject to intense pressures for development;
- a *dynamic zone* which may extend inland and seaward, usually a few kilometres wide, where there is strong dependence and/or influence of human activities and natural processes on coastal features and resources; and
- a *wider zone of influence*, often several kilometres wide which influences in part, directly or indirectly the other two zones.

Integrating ICAM into Existing Institutional Arrangements

There are two prerequisites for implementation of the plans formulated in ICAM projects:

- A *legal status*. The plans need to have a legal status that will assure to a great extent the possibility of a successful implementation.
- A *realistic basis*, meaning sensible policies and actions which are commensurable to the scale of the problems, the capacity of governance, the human and financial resources required and the technology support which is necessary.

Modifications of the institutional arrangements although helpful, if not necessary, but should not be considered as preconditions in order to ensure the follow up of ICAM initiatives.

One of the most frequent constraints in achieving ICAM is the inefficiency or inappropriateness of the existing legislative framework regarding the coastal zone. The majority of the Mediterranean states have either no legal or too rigid definition of the coastal zone involving both land and sea. Contributing to that, private ownership of land adjacent to the coastal strip, often hinders the integrated management of the coastal area.

Most Mediterranean states have a complex legislative framework, comprising of usually sectoral, uncoordinated and unsuited to ICAM laws. Specifically, sectoral laws are normally designed to serve a limited purpose and tend to be conceived in isolation from other laws. Moreover, if the same activity in the coastal zone is regulated by more than one authority and governed by different legislation, confusion about responsibility may result in the law not being enforced by any authority (poor law enforcement).

An additional impediment is the division of jurisdiction between land and sea areas. Land-use planning and the involvement of local authorities is largely confined in the terrestrial environment while the sea is predominantly the preserve of the central government. Last but not least, failure to implement and enforce enacted legislation is a serious barrier to integrated coastal area management.

Promoting Sectoral Policy Co-ordination Regarding Resource Usage

This component aims to integrate socio-economic development concerns and objectives to environmental conservation in the form of better sectoral policy.

It has been stated and confirmed through various studies and projects that a significant constraint to ICAM is insufficient or ineffective co-ordination between different government and local authorities. In the Mediterranean, central and local administrative structures are mainly organised on a sectoral basis (industry, agriculture, forest, planning, trade, etc.). Co-operation suggests the involvement and collaboration of the administrative actors at different levels of government (i.e. central government, regional and local authorities) – vertical integration – and different sectoral branches of administration (i.e. departments of fisheries, agriculture) – horizontal integration. Objectives of co-operation include the co-ordination of policy formulation, as well as formulation and implementation of policy plans and projects. Mechanisms to achieve co-operation may include consultation and joint working groups.

Introducing Environmental Management

This is an important component since it links planning and programming with the development of environmental management actions (i.e. collection and disposal of waste, pricing of resource use, as for example water, etc.) but also introducing a strong environmental protection component in land-use planning (i.e. designating protection and buffer zones, etc.).

Establishing Co-ordination

As soon as the appropriate level of governance for the ICAM Plan is defined, a co-ordination mechanism has to be set in place occasionally in the form of a special agency, committee or body to be assigned the leading role of plan implementation.

Promoting Implementation of Isolated Activities/Actions Taking into Advantage Existing Administrative, Institutional, and Other Contexts

ICAM process includes short, medium and long-term goals objectives and corresponding projects. For all, practical reasons it is recommended that this process is “broken -down” into more than one steps which are in appropriate phase sequence. The time-frame of every step could be ranging between 2 to 5 years and needs to include all details in terms of goals, projects, financial and technical aspects, investment, administration, issues of participation, etc.

Examples of actions to be included:

- Actions of *individuals*, stimulated by community based incentives and public awareness campaigns.
- Actions of *private bodies* (including financial contribution schemes), supported by incentives for new technologies and products.
- Actions of *government*, through institutional arrangements, administrative regulations, capacity building and financial support mechanisms.

Establishing Monitoring and Evaluation Mechanisms

Use of indicators

Indicators provide some opportunities for implementing ICAM. Evidence from practice indicates that in several cases a core set of indicators, reflecting pressures and state of key factors (i.e. endemic and threatened species), has been used as a way to monitor the state of the system and identify the violation of its limits, evaluate the effectiveness of the policy implemented, assess the goals and objectives that have been set in the first place. The implications of indicator's measurement need to be examined in terms of the goals that have been defined and the sensitivity of the sites under study. The use of indicators could be effective in the short term, enabling managers to confront increasing pressures from development.

5. Implementation Instruments and Methods for Integrated Coastal Area Management

There is a variety of instruments and methods which can be employed depending on the scope and scale of ICAM. In the following paragraphs (see also Table 1) some of the more salient ones are briefly introduced organised in three basic categories: *Information Management, Plan Development and Plan Implementation*. The following tools can be used to support the various mechanisms described in the previous paragraph in an effort to sustain ICAM in an area after the completion of pilot projects (see Figure 2).

Information Management

Data acquisition

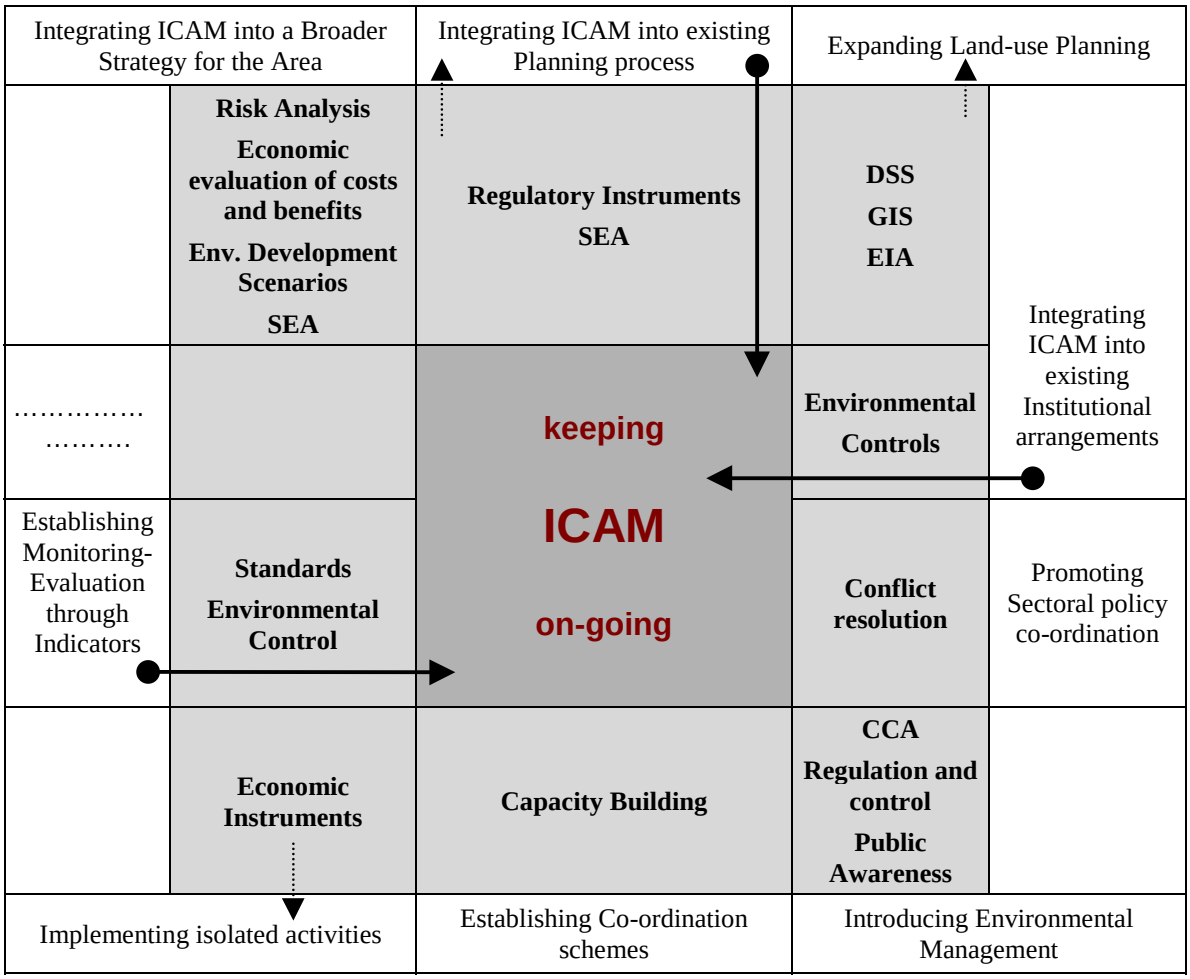
Data is the essential ingredient of any information system. Its reliability, accuracy and accessibility are essential to decision making. Recent developments in remote sensing, particularly with the aid of images acquired by orbiting satellites, are making data available even for inaccessible locations where data were previously difficult to collect. But technological advance is not going to solve all data collection problems for coastal management. Even after utilising all the data that can be obtained through remote sensing, much will be needed from field survey. The only guideline for field survey which can be offered is that it should be reduced to the minimum necessary for the defined functions of the database system.

Table 1: Tools of ICAM

	Initiation	Analysis	Conflicts/ Opportunity	Goals	Strategy	Implementation	Monitoring & Evaluation
Data acqu.	+	+					
Data man.		+	O				+
Data util.		+					O
DSS		+	+	O	+		+
Scenarios		+	+	O	+		O
CCA		+	O	O			O
Regulation					+	+	O
Zoning					+	+	O
Econ. instr.					+	+	O
Awareness	O				+	+	o
EIA						+	+
SEA		+	+				+
Econ. Eval.		+	+				+
Risk anal.	O	+					+
Confl.resol.	+			+		+	+

+ most useful O useful

Figure 2: Implementation instruments and methods for ICAM



Data management

- Indication of areas or variables likely to be under pressure from future development.
- Selection of sites most appropriate for essential public services which do not cause environmental degradation.
- Identification of resources of high sensitivity, for protection policies.
- Identification of priorities for nature conservation where sensitive ecological resources are in areas subject to pollution.
- Planning of tourism development in relation to the carrying capacity of natural resources.
- Selection of alternative development scenarios or projects.
- Identification of appropriate policy instruments.
- Definition of appropriate financial mechanisms.

An important element of data management for ICAM is bringing together the data on physical/natural resources and the economic information (such as social and economic benefits of the development, the costs of environmental damage caused by the development, costs of measures to avoid damage, and the benefits if damage is avoided or reduced). The integration of the physical and economic data is one of the most complex tasks in data management for ICAM.

Data utilisation

- Identification of the key indicators of existing conditions to the present state of the coastal environment.
- Identification of coastal resources under stress or at risk, and their level of vulnerability or risk of degradation.
- Forecasting the possible impacts of alternative development trends on sensitive resources.
- Identification of areas for development using site suitability and exclusion criteria.
- Simulation and testing alternative options.

- Monitoring and feedback.
- Exploration of available information and alternative scenarios through interaction tool with query capability.

Decision Support Systems

Decision Support Systems (DSS) can become an indispensable part of decision making process in many cases of coastal area management by highlighting complex patterns of interactions between natural and human ecosystems and interactions among management decisions.

The differentiation and diversification in both time and space of complex patterns of interaction make the use of **Geographic Information Systems** (**GIS)** ideal for coastal management purposes. The ability of GIS to store, handle and analyse spatial data (geographical and attribute) together with real time performance boosts the decision making process. The linkage, combination, intersection, etc. of various layers of information in parallel with a built-in capability of algebraic operations makes GIS a necessary tool for the direct evaluation of the management process.

Plan Development

Environment-Development Scenarios

Understanding the interaction between the environment and foreseeable future development is an important prerequisite for ICAM. Prospective studies exploring future options are a tool for achieving such understanding. The basis for prospective studies is a systemic approach. It provides authorities, planners and managers with the opportunity of setting development strategies within a broader context that takes into account uncertainty about changes in internal and external conditions.

A development-environment scenario is usually long-term (time horizon up to 30 years) and could be regarded as a link between the present and the future through a pathway built in stages of 5-10 year periods. A simplified picture of the phases of a scenario preparation lists:

- identification of critical factors influencing development opportunities;
- setting up hypotheses about changes in critical factors;
- development of coherent sets of hypotheses on the evolution of changes as alternative pathways; and
- analysis of impacts of impacts and cross impacts on environmental factors and condition with consideration for feedback effects on development opportunities.

Carrying Capacity Assessment (CCA)

In environmental planning the intensity of pressure in an area is vital particularly if it is related to the existing environmental conditions in the area. This calls for a measure of relative capacity or threshold of the local system to cope with pressures. Carrying capacity can be best defined as the maximum load of activity (or maximum number of users) which can be sustained by a natural or man-made resource or system without endangering the character of that resource. By defining the carrying capacity for a certain activity, it is possible to establish the framework for development and management of the areas under consideration. The application of CCA leads to the identification of the maximum number of users which can be absorbed at any time by the receiving area without disturbing the physical, economic and socio-cultural environment. Such analysis is often performed in relation to specific natural resource such as soil, water, beach area, etc. considered as constraining to development opportunities. It is employed to estimate the theoretical maximum level of an activity with the purpose to use it to establish “acceptable” (lower) levels as guidance for future development. Tourism development, agriculture, wildlife and range management are activities which can benefit from this type of analysis. CCA is best fitted for relatively limited size sites where resource constraints can be experienced as for example beaches, valleys, etc.

Plan Implementation

Regulation and control

Regulatory instruments (laws, agreements, etc.) are widely used in environmental management and in other fields of governmental activities where the market mechanism is absent or ineffective. The range of instruments includes land-use planning, building regulations, construction guidelines for the coastline and the

hinterland, conservation regulations, agricultural practices, fishing quotas, marine transport regulations, aquaculture requirements and licensing of various other activities.

Environmental controls may be introduced at national, state and local levels on air and water pollution, and the disposal of solid and hazardous waste. These controls can be supplemented with other traditional regulatory instruments such as standards of emission or even ambient standards. Pollution regulations help to maintain environmental quality; other regulations define activities in a way to prevent pollution or aesthetic damage and to manage and conserve resources.

Regulations offer, therefore, a range of instruments of implementation but they have to be employed with two provisions in mind:

- They have to be used in the most cost-effective and environmentally most advantageous way. In the cases when other criteria are equal, the most environmentally favourable should be chosen.
- Regulatory instruments need an enforcement mechanism. For this purpose, managers should be able to make use of: (i) withdrawal of permits to build; (ii) withdrawal of permits to operate; (iii) imposition of effective fines; and (iv) access to courts for imposition of penalties. Regulatory instruments are preferable when quick action is required and rules can be made quite clear to all parties concerned.

Economic Instruments

Economic instruments can function as incentives or disincentives for environmentally-sustainable use of resources. They can be:

- *impact fees* (one time payments by developers to pay for infrastructure and environmental protection e.g. roads and storm drainage, flood protection, environmental monitoring);
- *taxes/charges* on pollutants or potentially polluting products, e.g. effluent charges, or refundable deposits on potentially polluting production, tax incentives;
- *removal of subsidies* on environmentally unsound production;
- *revision of pricing policies* to reflect the full environmental costs of a resource, while ensuring basic needs, satisfaction and equitable access to it. Resources such as water have frequently been under-priced, but acceptance that they are not free and unlimited implies a fundamental change in attitude;
- *low interest loans and grants,* e.g. for improving buildings to withstand certain environmental threats, for production to appropriate building materials to substitute for imports (using non-polluting technology), for industries to invest in pollution control or relocate (negative taxation).

Economic instruments are used supplementary to regulations, in areas where economic efficiency is important, where regulations failed and/or where funds need to be raised to implement public policy, e.g. for environmental infrastructure.

Public Awareness, Capacity Building and Education

Public support for environmental aspects of development policies, and for the successful enforcement of policies, especially regulatory policies is very important. Dissemination of information about valued environmental resources and the way in which they are threatened, hazardous areas, and ways of developing and building to reduce risk and environmental degradation, is an essential element in implementation. The need for education on the environmental implications of human activities is as great within governmental agencies as it is outside.

A precondition to informed public participation is that the public recognise the economic and environmental values of integrated coastal area management. In particular, public participation is enhanced when the negative economic and environmental consequences of, for example, draining wetlands and discharging pollutants, are recognised.

Therefore, public awareness programmes targeted at the general public, Non-Governmental Organisations (NGOs), government departments and others “interlocking” in coastal area management should be put in place.

Environmental Impact Assessment

Environmental Impact Assessment (EIA) is a method of identifying (i) the impacts of human and natural environments; and (ii) options to reduce or mitigate negative impacts.

Strategic Environmental Assessment

Environmental Impact Assessment (EIA) should be carried out at both the policy and project levels. At the policy level it is often referred to as Strategic Environmental Assessment (SEA) and at the project level Environmental Impact Assessment (EIA). The use of SEA provides a means of focusing attention across disciplines and organisations on strategic options enabling the identification of the strategic "best practicable option" for the coastal areas as a whole.

Economic evaluation of costs and benefits

Apart from physical evaluations, such as environmental impact assessment and risk analysis, economic evaluations should also be carried out to ensure economic efficiency in coastal management. The combined results of economic and environmental assessments can provide useful insight into acceptable options.

Many outputs of activities taking place in the coastal area are channelled through the markets (tourist expenditures, industrial outputs, etc.). However, environmental benefits/damages (clean and efficient water, conservation of natural areas, etc.) are seldom traded in the markets. Furthermore, even market traded activities are evaluated only in financial and not in economic terms; and most activities and environmental protection require substantial expenditures that will produce benefits for a long period in the future. To provide a common denominator for these various activities, expenditures, costs, and gains require a comprehensive, analytic framework such as cost/benefit analysis.

Type of projects to be evaluated:

- Major infrastructure projects and other governmental expenditures, taking into account their environmental benefits and costs;
- Private investment projects, particularly when they are subsidised by the government. All private projects have environmental impacts which require pollution control or conservation measures either by the entrepreneur or by the government. Subsidies in these projects often take the form of taxation allowances, cheap land for tourism or cheap government loans for various types of development, governmental expenditures to minimise their environmental impacts or straight-out cash subsidies.

Risk analysis

One of the consequences of the intensive development of coastal areas is that the probability of various risks is increasing, and even larger amounts of people are exposed to them. The general awareness of exposures to natural risks and technical risks is increasing but in many cases the relevant knowledge is incomplete and non-structured into management policies and contingency measures.

In order to mitigate or prevent possible negative, and sometimes environmentally catastrophic consequences of such hazards, risk management techniques should be part of ICAM. However, risk management can prepare only for probabilities of risks occurring and can only broadly estimate their consequences. Vulnerability analysis offers supplementary information to risk analysis by identifying acceptable levels of impacts on key resources and factors.

Three steps can be distinguished in the risk management procedure:

- identification of major hazards;
- assessment of the potential of individual hazards; and
- formulation of a plan that integrates the various management approaches to risks.

Conflict resolution

The high social value associated with coastal areas is likely to generate numerous and severe conflicts. Some of these conflicts are of a "vertical" nature, i.e. may occur between the authorities and interests at various levels (international, national, regional, and local), while others are "horizontal" conflicts between the users and activities at one and the same site or at adjacent sites. Especially important are the conflicts between the interests of individual users of land and water resources. A reasonable and just solution to such conflicts is one of the most important objectives of any coastal area management.

The procedures for working through conflicting interests are:

- Formation of ad hoc task force (commissions, scientific bodies) for resolving a particular problem.

- Formation of long-term or permanent bodies to monitor a particular process, orient it and even resolve the conflicts. Such bodies are often entitled to take decisions and they also carry the public responsibility for those decisions.
- Generation of a policy dialogue through discussion among interested parties in potential conflict is often used by moderators or facilitators. The special value of this technique is that it can provide a relatively objective insight into the various interests of the different parties while the possible consequences of the decisions can produce additional information and find the basis for compromise solution.
- Nomination by the authorities of qualified intermediaries when a dialogue is impossible or has been interrupted. Their role is much more active and responsible than that of facilitators as, in many cases, they propose their own solutions after they have heard all parties and studied all individual interests.
- Creation of an arbitration procedure is used for cases where it is impossible to find a solution through negotiations (environmental mediation). Legal authority or the consent of the interested parties is an essential prerequisite for its application. Decisions of the arbitrators bind all parties and therefore their impartiality and their ability to understand the issues are basic to the arbitration process.

6. Issues and Recommendations for Future ICAM Special Interventions

The overview of the case studies demonstrated a wide diversity of Integrated Coastal Area Management (ICAM) programmes in the Mediterranean:

Special Interventions Level

Design of interventions

- The area of intervention varies, mostly defined on the basis of administrative boundaries with few exceptions (islands).
- There is weak spatial relationship of natural ecosystems areas and functions with human ecosystems.
- Environmental issues treated according to institutional capacities to perceive environmental issues in a comprehensive way.
- Urbanisation and land-use conflicts underlie the basic reflection in most cases but fails to be integrated well into management policies.
- Human impacts on natural ecosystems have been treated in a satisfactory way from the point of view of identifying conflicts but quantitative estimates are lacking in general. So do significance questions.
- The impacts of environmental degradation on human activities has not been adequately treated.
- Future dimensions are not adequately treated except in the cases of integrated planning studies. Even there (except Rhodes) views on the future are quite limited.
- Almost no integration with higher/lower plans (except perhaps Israel).
- Although an analysis always exists there is little effort to make a synthesis of constraints and opportunities to identify critical factors, often opting for an across the board presentation of issues without assessment of importance.
- Similar to the above is the experience with goals. They tend to be general and with little effort to link them to specific policy measures, in most cases.
- Limited public participation probably reflecting deficiencies of Med societies in such practices.

The above encompass issues related to planning, participation, legislation, information management, sectoral-territorial co-operation and co-ordination, use of tools, etc. Within this context it is important to:

- develop local information exchange networks and make data accessible;
- agree common protocols for information exchange;
- secure that data is, to the extent possible, precise, complete, compatible and statistically credible.
- ensure responsiveness to local needs. Local level planning is usually more responsive to local needs and concerns and provides for a greater level of detail than in the case of a more centralised planning;
- use diverse and relevant techniques (i.e. forecasting, scenarios);
- estimate the cost-benefit relation of the tools used;
- incorporate broader perspective required to accommodate national concerns;
- create long-term orientation;
- ensure coherence, avoid inconsistencies between the strategies drawn up by different areas;

- ensure openness and transparency;
- combine “Top-Down” and “Bottom-Up” approaches;
- adopt an adaptive and incremental approach to create a resilient co-ordination structure;
- establish neutral leadership for co-ordination;
- provide a focal point;
- ensure/enhance commitment;
- initiate capacity building;
- establish a clear process/strategy through clear and agreed procedural guidelines. Participation needs to become an integral part of plans;
- ensure full representation;
- ensure, provide adequate resources;
- support continuous learning;
- establish structures to achieve participation (i.e. steering groups of key stakeholders, general forums that meet regularly, technical panels, newsletters and various discussion groups);
- promote timely dissemination;
- use the media to inform the public and gain wider acceptance of changes damaging traditional management practices.

Implementation

- Almost all cases are still at a pre-implementation phase.
- There has been a general lack of connection of such cases to national development planning and programming.
- There are scarce cases of evaluation. There is a general lack of monitoring/evaluation mechanisms
- Regulatory instruments and some economic instruments have been used. Very little use of softer approaches probably reflecting the strong tradition in Government in Mediterranean countries.
- In most cases special legislation is necessary.

Within this context it is important to:

- designate costs or specific tasks between participants;
- develop competencies for preparing successful bids for funding;
- harmonise ICAM activities with other programs (i.e. Agenda 21) in order to increase synergies;
- ensure commitment from project partners and if possible their participation in financing activities, even to a small extent;
- use diverse/innovative instruments (i.e. voluntary agreements and economic instruments) according to local particularities (natural, culture, socio-economic);
- use instruments appropriate to existing local capacity (technology);
- use instruments suitable to the existing legislative, institutional and political system;
- provide for multiple uses of ICAM tools (potential use for other activities).

Follow-up

- Except in CAMP activities very little exposure to specific tools of ICAM is evident and even in CAMPs the emphasis is on the use of such tools in a way of documentation of data.
- Training is a distinct activity only in CAMP projects.
- No major follow-up of ICAM tools and techniques.
- Impediments to the use of ICAM tools which need long-term exposure and familiarity before adoption, probably because some tools are not well developed yet.
- Since the tools are not used and most cases are at a pre-implementation stage there is no ground for testing their effectiveness.

Within this context it is of crucial importance to:

- ensure/enhance broad political as well as local community support;
- ensure dissemination of results and diffusion of information;
- establish capacity building;
- ensure institutional and administrative support;
- sustain co-operation through institutionalisation and funding;
- enhance the role of other actors, as the private sector, in the implementation of ICAM project outcomes; and
- secure self-sufficiency.

Regional Interventions

It is evident that there is no unique way to pursue Integrated Coastal Area Management (ICAM) in the Mediterranean. Evidence from implemented actions varies reflecting the diversity of geographic conditions and development/environment problems of coastal areas but also the complexity of institutional set-ups. The long established regional co-operation imposes the burden to continue this effort as a stimulus of instituting a long-term process of ICAM. For this it is necessary to:

- *Encourage pilot actions for ICAM at the local, regional, national and regional (supranational) scale*. Within this context it is necessary to provide funds for future initiatives. Action, through pilot projects, will not only contribute to the promotion of the approach but it will also provide a valuable feedback to the broader institutional framework of ICAM.
- *Explore and build-up synergies with other initiatives* promoted even within different policy contexts. For example, recently, the need to promote Integrated Coastal Area and River Basin Management (ICARM) has gained significant recognition. The new Water Directive in EU provides significant opportunities, at least for some Mediterranean states to sustain and incorporate coastal zone management initiatives and concerns in water management initiatives.
- *Build-up on critical issues for ICAM*, mainly in respect to the use of tools, particularly economic instruments and information management. It is necessary to test in practice the opportunities and constraints and even the viability of various tools (i.e. voluntary agreements, etc.) within the Mediterranean context.
- *Prioritise future action*. Most of the issues (i.e. participation, co-ordination, planning, etc) that have been identified and examined into the various projects are significant for the implementation of ICAM in the Mediterranean. However, it is evident that, given the various constraints (funds, etc) and the significant pressures on coastal areas, it will be necessary to concentrate and prioritise actions so as to control critical processes leading to the rapid deterioration of the coastal environment and resources. Uncontrolled development of tourism and of recreational activities, overexploitation of water resources and increased pollution are key problems in the Mediterranean that need to be tackled in future initiatives. The experience gained from the implementation of such projects would provide significant potential for replication in other areas, throughout the Mediterranean region. Furthermore action could probably focus on three different types of areas:
    - Areas under pressure, usually tourist resorts or urban areas where most of the problems of the coastal areas (i.e. loss of agricultural land, loss of biodiversity, etc.) are already present. In these areas environmental deterioration is significant, often irreversible. Action is necessary in order to safeguard the viability of economic activities, protect human health and eventually the quality of life. The difficulties for promoting ICAM are several, resulting often from conflicting economic interests but also from the increased investments required. However, since there are several areas with such characteristics, it will be necessary to test approaches and search for solutions so as to ameliorate the quality of these coastal areas if not reverse the situation. Given the urbanisation trends for the whole Mediterranean the crucial importance of such interventions is evident.
    - Areas undergoing rapid development. These areas are following the same development pattern as areas under pressure. Specific interventions will be required so as to avoid the repentance of negative experience.
    - Areas with significant ecological value, not facing significant pressures at present, but expected to do so in the near future. The management of these areas is necessary in order not only to safeguard the uniqueness of the coastal environment but also to provide in addition “success stories” for ICAM since it is easier to implement such measures for the time being as conflicts are not existent.
- Promote co-operation and the exchange of information, among Mediterranean countries, in respect to institutional arrangements and planning procedures that are followed by the various countries for the management of their coastal areas. Regulatory instruments remain by far the most commonly used tools to regulate development and protect areas with high ecological significance.
- Introduce ICAM principles at the Regional level and related agreements.
- Encourage the elaboration of a Strategic Framework for ICAM (goals and principles) within the context of the Barcelona Convention.
- Promote the co-operation between public and private bodies at a Regional level in an effort to promote ICAM and effectiveness of initiatives (i.e. Forum).

Experience suggests that most initiatives are meeting significant constraints, related to institutional inertia, to the prevalence of sectoral thinking in developing policies, to weak actors with the exception of governmental agencies, which are basic constraints for ICAM. However, it is important to investigate ways to overcome the problems for the implementation of ICAM in the Mediterranean, since coastal zones present a significant asset for socio-economic development while facing severe pressures, making action indispensable.

The variety of responses and initiatives underlines the need to act for coastal areas, while in each attempt one can find elements of interest or innovations which can stimulate further thoughts about action. Finally, it is useful to profit from past experiences and adopt those elements which seem most suitable for each case. What really matters is putting the thoughts and plans into action…This is the challenge…..

Coastal Planning Experiences from Elsewhere

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Abstract

Countries of the Mediterranean Region like many of the world's coastal nations, are constantly re-examining its systems of integrated coastal management (ICM) and optimizing the role of ICM plans.

The ability to learn lessons from international coastal planning approaches is explored by referring to coastal management and planning practice from around the world, with special emphasis on Australia. Key elements in the long-term's sustainability of coastal planning processes are examined. Particular focus is given to those attributes of coastal planning approaches that assist with their implementation including the role of coastal plan steering committees, values-based planning techniques and the use of microfinancing implementation measures.

Undertaking integrated coastal planning is much like a taking a journey; with the planning work being the journey and implementation activities the destination. There are benefits in both undertaking a good planning journey and effectively reaching a destination. It is argued that there is merit in assessing the success of coastal planning initiatives both by their implementation actions and the more intangible benefits gained during the planning journey.

Experience from Australia and elsewhere outside the Mediterranean region shows that good planning is deeply embedded in administrative, political, social and cultural contexts. In concluding, the paper demonstrates participatory coastal planning processes are worthwhile and can reap substantial benefits to plan implementation and broader benefits including institutional and individual capacity building.

Introduction

Coastlines are used for a range of human activities, including settlement, transport, fishing, commerce and recreation. Until recently, there was a general sense that there was enough coast for everyone. But during the past three decades much of the global coast has been divided into areas allocated for urban use, conservation reserves, tourist developments, heritage and cultural sites, industrial zones, ports and other specific uses. Population growth, pollution, coastal degradation, social change, local activity patterns, regional activity demands, generational change, globalisation and the influence of local leaders offer a daunting challenge to planners who are seeking to achieve sustainable coastal development.

The realization that the coast is a finite resource has brought with it new challenges. What is the best way to make use of the coast and reduce the impact of human use? How can the various competing demands for coastal land and resources be accommodated?

To help answer these questions coastal nations are increasingly turning to the notion of an integrated coastal management (ICM) approach based on the principals of long-term sustainable development. ICM has proved to be a very resilient concept. The practice has become a global activity, estimated to be practiced through 447 global, regional, national and sub-national programs in at least 95 developed and developing nations and semi-sovereign states (Sorensen, 2000; Hildebrand and Sorensen, 2001).

The development of specific coastal plans is often an important part of an ICM programme. Governments and international donors have seen the merit of coastal plans, if undertaken effectively, to enable a clear, consensual vision for the future use of a coastal zone to be articulated. Furthermore, coastal plans can specify the various actions required to move towards that vision.

There is a wide variety of ICM planning approaches which can be used to tackle particle types and scales of coastal issues and problems (Kay & Alder, 1999). However, effective coastal planning is not easy – and their implementation harder still (Ripley and Franklin, 1986; Kenchington, 1990). For example, a recent international survey of 43 ICM programs in tropical regions found that only 12% were fully implemented (Westmacott, 2002).

Experience from Australia and elsewhere outside the Mediterranean region shows that good planning is deeply embedded in administrative, political, social and cultural contexts. In other words, this paper concludes that coastal planners must roll up their sleeves and get involved in the often messy, but ultimately rewarding, participatory coastal planning processes. Coastal planners cannot continue to rely solely on the clean objectivity of science and scientific method; and then hope that plans will be implemented by people who have not been involved in the plans' development purely on the strength of those objective arguments.

This paper uses a similar distinction between the ICZM "process" and discrete "projects" introduced to the Workshop by Brian Shipman (Shipman, 2002). In this paper undertaking coastal planning projects is viewed as a journey, which contributes, and in some cases initiates, the CZM process – described here as a "destination".

Coastal Planning: the Journey and the Destination

Experience from Australia and elsewhere shows effective implementation of coastal plans does not appear out of thin air when a plan is completed (Kay and Alder, 1999). Well conceived plans in any discipline – from environmental management to small businesses(Kahrs, 1995) – follow standard planning practice of clearly defining and assigning implementation actions. These actions are assigned responsibility for implementation to an individual, government department, NGO or business group and a timeframe or priority is specified. Sometimes notional costings are given to implementation actions to assist in raising the required finances. These are essentially the fundamentals on which good coastal planning implementation practice is based.

However, this is often not enough. If stakeholder support is weak, consultation processes poor, or agency capacity insufficient plan implementation is hindered. It is an uphill task to build implementation support after a coastal plan is completed; more so if people not involved in planning are asked to play an implementation role. This is doubly so if the person or organisation assigned implementation tasks do not see the benefit.

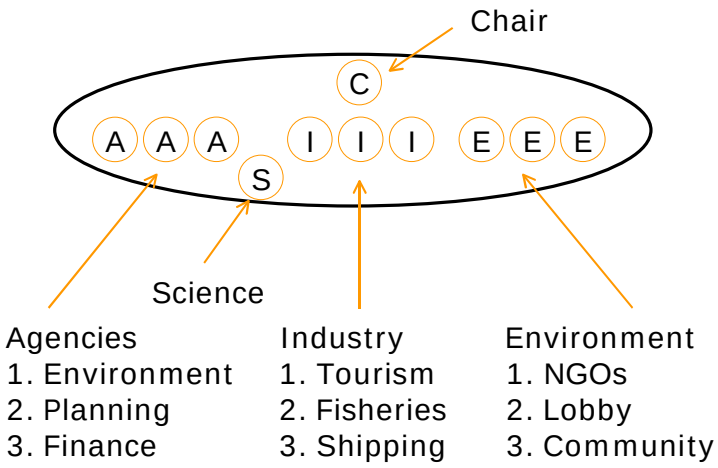
It is a strong human characteristic to want to see things through to their conclusion. So it is that coastal plans developed by a broad range of people – especially those with a likely role in implementation – are more likely to be implemented than those developed in isolation from those assigned implementation actions. It is important to note here that this conclusion is an intuitive one that is also borne out by experience. However, there are to the author's knowledge no controlled comparative studies that attempt to undertake plans through collaborative and isolated means on, for example, neighboring sections of coastline. There is some evidence from the field of environmental communication that involvement of stakeholders during the development of an environmental campaign significantly improves implementation; although it is unsure if these findings can be transferred directly to coastal planning (Denisov and Christoffersen, 2001). Consequently, the assertion that a good coastal planning journey makes a good destination cannot be qualitatively demonstrated at present.

Managing a good coastal planning journey takes time, energy, rigor and a great deal of patience. It is also something not to be taken lightly. For example, it should not be seen as something "tacked on" to a coastal plan while other elements, such as scientific studies, or the development of a GIS are more important. The main reason for assigning central importance to the journey is that once the genie of a multi-stakeholder collaborative planning approach is let out of the bottle it is very difficult, if not impossible, to put it back in. Those managing the planning journey must be able to adapt to the inevitable changes that this swirling genie will bring to how the plan is carried out, and what outcomes it eventually reaches. Indeed, this can be a challenging experience for the technical professionals charged with developing a coastal plan who may be used to working on purely technical issues for which they have particular expertise.

One tool for managing a more participatory approach to coastal plan development used in Australia is a Steering Committee made up of key government agencies, community stakeholders and representatives of key industry groups. The geographic coverage, type of coastal issues and problems, stakeholder numbers, numbers of government agencies, the role of scientific studies and levels of government involved and time period for plan development are the main variables in determining the composition of Steering Committees. Members are chosen carefully with a view to implementation. For example, a coastal plan addressing issues of managing the growth of coastal tourism could include representatives from a local hoteliers association or chamber of commerce as shown in Figure 1. It is worth noting that the three agencies shown in Figure 1 are

planning, environment and finance (treasury). Here finance ministry officials can play an important part in framing implementation actions that are likely to be funded, and may even play a role following coastal plan completion in seeking financial support.

Figure 1: Idealized Coastal Plan Steering Committee



One interesting experience from Western Australian integrated coastal plans is the preference to use an independent chair for their Steering Committees. Chairs, and their responsibilities, are chosen with great care. Sometimes nominations are sought publicly, or people are hand-picked often with the guidance of local levels of government, and the personal networks of government staff. A good Chair can be seen to personify the goal and objectives of the plan. For example, a Chair with excellent facilitation skills, strong roots in a community, with local history, community support and who is known to both care for the environment and support a strong local economy can aid the personification of sustainable coastal planning. Consequently, the resultant coastal plan can gain a legitimacy that would be impossible to achieve from a plan developed solely by government officials.

A Good Journey can be a Destination in Itself

The focus on assessing the success, or failure, of a coastal plan is usually on its implementation. For example, the number of implementation actions and their degree of implementation can be assessed (Gepp, 1991; Westmacott, 2002). Clearly, a plan is undertaken to achieve some tangible outcomes and so this focus is deserved. But there can often be an over-emphasis on plan implementation; it can become the only evaluator of a coastal plan's success when there may have been some substantial benefits from the coastal planning activity itself that will not be revealed through implementation analysis alone.

The potential to use the planning journey as a measure of a plan's success is just beginning to be discussed by the ICM community (McKellar and Kay, 2001). As a result, no established mechanisms for evaluating the key elements of a successful coastal planning journey currently exist to the author's knowledge. In the absence of such guidance, example measures for assessing the success of CAMPs in the Mediterranean could include:

- increased understanding of the biophysical coastal processes resulting in improved individual coastal planning decisions;
- heightened awareness of the roles of responsibilities of government departments in ICM;
- more willingness to work collaboratively between government agencies;
- greater understanding of the motivations, interests and values of stakeholders;
- institutional and individual capacity building.

There is perhaps scope to consider such measures to explicitly recognise the value of the coastal planning journey in the design of future CAMPs. In addition, it is also useful to further explore the use of values planning as an aid to assisting the implementation of plans.

The Coastal Planning Iceberg

The implementation of many coastal plans in Australia and elsewhere is hampered by a lack of emphasis on assumptions, agendas, values, interests and conflicts. Standard components of a structured coastal plan such as: goals, objectives, actions and evaluation measures often consume most of our attention.

The most often followed process worldwide is a "rational" approach which uses a stepwise approach to develop a consensus on the preferred future of a section of coastline based on as much scientific information as possible, and then identify when, where and by whom various specific management actions will take place.

Some plans dip a toe write a set of principles that set a framework within which a plan is developed. Unfortunately, most coastal plans do not tackle head on many critical issues that drive coastal plan development: namely human relationships, emotions, agendas and values. After all, coastal plans are written by people, with a focus on the use of coastal resources by people, from a set of choices conceptualized by those writing the plan. In addition, and perhaps most crucial of all, it is politicians and other decision makers which will decide on whether a coastal plan is funded and implemented.

In this respect it is useful to consider the image of an iceberg, which has a great deal more below the surface than above, as a metaphor for rational ICM. Like an iceberg, that part of ICM, which often remains invisible below the surface can be far more dangerous than that which is overtly apparent. Naturally, most of us (especially those with a natural science or engineering background) prefer to work with the more attractive and more tractable part above the surface (Figure 2).

Figure 2: Indicative Above and Below the Surface Components of the Coastal Planning Iceberg[2] (Kay in press)

If we think of a coastal plan as the embodiment of a complex set of human relationships rather than an ordered set of planning steps, then emerging coastal planning practice in Australia provides some useful tools that we can think of applying to develop a realistic and sustainable coastal plan – and may well prevent titanic style disasters (Kay and Alder, 1999; McKellar and Kay, 2001). These tools include specific studies in coastal plans of community values, workshops that focus on stakeholder values, structured conflict resolution techniques. It is important to note that all these approaches are based on social-science approaches. As such,

[2] Base iceberg graphic from: http://www.geocities.com/yosemite/rapids/4233/index.htm

coastal planning in Australia is slowly beginning to use professionals from the social sciences alongside the more traditional natural sciences and engineering disciplines most frequently used in coastal planning date.

Using “under the surface” approaches can confront deeply held community values can expose individuals and groups within a community to a searching glance at their inner values. This is threatening to the people concerned as well as being potentially damaging to the community. It is a natural, and possibly even in some cases a responsible position for those undertaking ICM plans to avoid raising the specter of such issues. Moreover, there is a real possibility that while some people involved in an ICM process might bear their souls, others would likely hide behind the language of objectivity, staying safely high and dry above chilly polar waters.

Nevertheless, despite these tensions and potential problems, exploring below the surface is one of the few ways to enable coastal plans to be more effectively implemented. Tackling head on issues involved with human interaction and aspiration could facilitate a breakthrough for coastal planning initiatives, which currently often grind to a halt on some unfathomed obstruction; often at the nexus between plan completion and implementation.

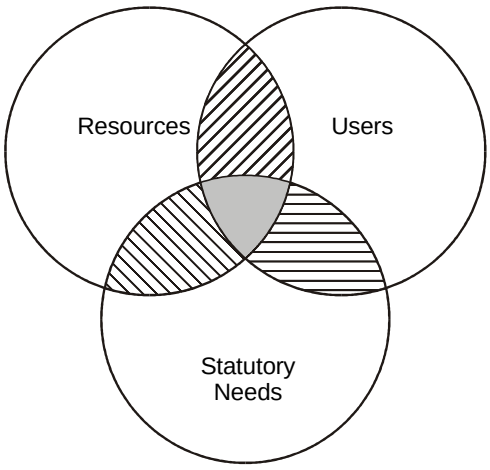
It is worth reflecting, however, that values-based coastal planning techniques are evolving in developed countries with a long tradition of ICM, such as Australia and the United States. Consequently, it may be that ICM must be a relatively mature process for “under the surface” coastal planning approaches to become acceptable. On the other hand it may be that the rational coastal planning approaches used up until now in these countries have not achieved the expected results, and so other countries could “leapfrog” straight to using values-based approaches early in the application of their ICM processes. It is simply too early to tell, and there are no evaluative studies to confirm this issue either way. Nevertheless, the apparent universality of “under the surface” issues, based as they are on fundamental human traits there does appear to be a case for the controlled application of these approaches elsewhere.

Plan Implementation: Carrot and Stick

It is useful to consider the implementation of coastal plans containing three interacting components (Kay and Alder, 1999)shown in Figure 3:

- managing the resource and resource users;
- ensuring that stakeholder expectations are met; and
- meeting statutory requirements in a cost-effective manner.

Figure 3: Interaction of the Major Components in Implementing Coastal Management Plans (Kay and Alder, 1999)



Experience has shown that optimum plan implementation is achieved when all three components in Figure 3 are balanced. Here resources are effectively managed, while users’ expectations are addressed and the statutory requirements of land-use plans, Environmental Impact Assessment (EIA) and other measures are met. Effective plan implementation therefore tries to minimize regulation and resource costs while maximizing broader stakeholder support and participation.

Another way to look at implementation approaches is to consider the difference between techniques to tempt organisations into implementation, approaches forcing them to do so. These are called “carrot and stick” approaches respectively.

The most common sticks, as mentioned above, are through statutory requirements of EIA or through land or water-use planning. Planning schemes can be amended to prohibit certain uses, or new developments “must” or “shall” have reference to a coastal plan. The full range of stick measures are well documented elsewhere (Cicin-Sain and Knecht, 1998; Kay and Alder, 1999).

There is an increasing awareness that carrot initiatives can provide a very useful balance to unrelenting use of the stick. Carrots can include the use of financial incentives including tax breaks to promote sustainable coastal practices and encourage plan implementation (Turner, 1995; Turner and Adger, 1995). In addition, if a coastal plan has been undertaken collaboratively between agencies, or even with industry partnership, then economic efficiencies of pooling implementation resources can be achieved.

A very successful carrot program from Australia is Coastcare which is essentially a microfinancing grants program promoting coastal plan implementation, other on-ground coastal management works and related education activities[3]. Coastcare started in 1995 and built on the previous success of the Australian landcare program designed to reduce the environmental impact of agricultural practice (Kay and Lester, 1997). Millions of dollars have been expended on around 1,300 Coastcare projects. For example, in Western Australia Coastwest, the local brand of Coastcare, expended AUS$4.6M from 1995-2000 on 250 projects of which 36 were for grants under AUS$5,000: 121 grants between AUS$5,000-20,000 and 93 over AUS$20,000 (Coastwest/Coastcare, 2000).

The emphasis of Coastcare grants is on ensuring local community support. Hence grants are directed at local community groups and/or local governments. Grant recipients are required to demonstrate a “match” of grant funding, either through the provision of cash resources or through volunteer labor.

Conclusions

Successful coastal planning, and especially coastal plan implementation, is not easy. For coastal planning projects to contribute, or initiate, an ICM process they must be designed and managed carefully. Experiences in coastal planning from outside the Mediterranean region, with a focus on Australia has indicated that careful coastal plan design can improve both implementation effectiveness and the more intangible benefits gained from the act of undertaking the plan itself.

It is also concluded that considering the more intangible aspects of the planning process, with a focus on the “human” dimension is becoming increasingly important in developed countries outside the Mediterranean. However, further analysis is required to fully evaluate the exact implications of this trend for coastal planning in the Mediterranean.

Finally, it is concluded that there is considerable value in discussion and analysis of experience with ICM planning from regions outside the Mediterranean. Lessons learned from these experiences have the potential, when tailored to the social, economic and cultural nuances in the region, to play a significant role in enhancing regional ICM processes.

Acknowledgements

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[3] http://www.ea.gov.au/coasts/coastcare/index.html

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Improving the Design of Projects, Planning and Programming of Interventions for Integrated Coastal Zone Management

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Introduction

The high importance of coastal systems to humanity has always been appreciated; historically, the coastal zone has been a major focus for the development of human society, the use of sea for transport and trade and the availability of abundant food in the coastal waters, encouraged settlement; today most of the world's population lives within 80 km of the coast (Sobel, 1993); moreover, large part of the world's living marine resources and the highest biodiversity is found in the coastal zone (Clark, 1999). However the diversity of coastal systems is affected directly and indirectly by numerous human activities concentrated at the coastal margins: settlements, tourism and recreation, fishing, transportation, mining and energy industries, agriculture, domestic and industrial waste disposal (Carter 1991, Goldberg 1993). When these activities develop together on the narrow coastal strip, problems tend to arise, creating conflicts over (UNEP, 1995, 2001):

- access to the coastline for some activities, such as marinas which require locations on the sea-land interface;
- incompatible uses which cannot exist in juxtaposition, such as recreation and tourism activities and aquaculture activities;
- privatisation of space and resorts, which prevents public use of, or access to, coastal resources and the shore;
- long-term goals for conservation and short-term economic interests, e.g. preservation or drainage of wetlands;
- provision of environmentally protective infrastructure to meet the rate of economic development, e.g. expansion of sewage collection and treatment to meet tourist demands.

Conflicts are also generated over the use of renewable (i.e. fish, freshwater) or non-renewable (i.e. land, oil and gas reserves, sensitive ecosystems) coastal resources. The sustainable use of coastal resources is affected by man-made or natural events and processes (UNEP, 2001):

- impacts by major development projects or by smaller ones that could have cumulative impact on the environment;
- gradual long-term changes, such as climate change with corresponding rise in sea level;
- natural disasters, such as floods, earthquakes and tidal waves;
- sporadic man-made disasters, such as oil spills.

Oil spills and algal blooms, are illustrations of the fact that coastal communities frequently suffer the consequences of events or developments occurring inland or offshore and therefore beyond their control. This is because the coastal zone is defined as a strip of land and sea of varying width, depending on the nature of the environment and management needs and it seldom corresponds to existing administrative or planning units.

Defining and understanding the environmental issues associated with coastal zones is crucial, but the need to provide an effective executive structure for management is equally important. Coastal environments are dynamic, comprising continual fluxes of mass and energy. Coastal management should be prepared to endorse this dynamism and accommodate it within management structures. All too often however, management objectives focus on static solutions, such as securing the shoreline against erosion, maintaining a constant channel depth or cultivating a continuous dune grass sward. It is apparent that such strictures place an unwanted stress on many coastal environments, and may, in some instances, lead to a catastrophic reaction or system failure. The first rule of coastal management should be "to work with, rather than against, this natural system" (Carter, 1991).

Integrated Coastal Zone Management (ICZM) or Integrated Coastal Area Management (ICAM) is a continuous process with the general aim of implementing sustainable development in coastal zones and maintaining their diversity. To this end, it aims, by more effective management, to establish and maintain optimum (sustainable) levels of use, development and activity in coastal zones, and eventually to improve the state of the coastal environment (EC, 1997).

Variability in CZM Approaches

It should be noticed that there is no uniform international approach to Coastal Zone Management. The priorities vary in different countries, depending mostly on the problems each country has in the coastal zone. The most characteristic is the Dutch approach, where effective coastal management is treated as a national objective, albeit for reasons connected primarily with the health and wealth of the low lying inhabitants (Carter, 1991). On the other hand, in the Mediterranean countries, the approach concerns mainly the management of coastal and marine resources and the prevention of the impact from human activities. Some countries have organised full scale (integrated) CZM programmes (e.g. The United States, Sri Lanka) or sectoral programmes (e.g. Philippines, Australia, Costa Rica) while many others are evaluating integrated CZM programmes. Today, 56 countries are said to have tested various approaches to CZM (Sorensen, 1997).

Common drawbacks in coastal zone management programmes, irrespective of where they take place, are the lack of adequate finance, bureaucratic inflexibility, and the absence of co-operation and consistency between agencies and between projects. Another characteristic is that most CZM programmes are carried out in developed nations. Developing nations have little time or resources for integrated programmes, preferring to "cope" with particular problems as they arise. Such a conflict-resolution approach is symptomatic of the early phases of nearly all environmental management (Carter, 1991).

EU Approach for the ICZM

Compared to the other continents, Europe has an extended continental shelf and a long coastline (89,000 km), in relation to its land area. Moreover Europe's coastal zones contain some of the most fragile and valuable natural habitats. The EU had three important reasons to be interested in the fate of coastal zones (EC, 1997):

- the existence of European wide problems which cannot be treated by individual countries separately (common natural and cultural heritage, transfers of pollutants and of sediments, tourist flows, maritime safety);
- the influence of the policies and actions of the EU on the evolution of the coastal zones (regional policy, transport, fisheries, environment, agriculture, energy, industry, tourism);
- the need for exchange of experience and know-how in a field where successes are still rare and where there is a substantial public and political demand for the conservation of coastal zones and their sustainable development.

The European Commission has so far initiated and supported a number of actions addressing the environmental problems of the Union's coastal zones. It has been revealed that the main constraint to face these problems effectively is the lack of appropriate administrative mechanisms, enabling concerted positive actions. The Commission's concern about this matter is better expressed by the Communication from the European Commission to the Council and European Parliament on the integrated management of coastal zones (1995). On the basis of this analysis, and in the light of the reactions of the Council, the European Parliament, as well as certain NGO's, the EC designed the Demonstration Programme on Integrated Management of Coastal Zones (ICZM), which operated from 1996 to 1999 around a series of 35 demonstration projects and 6 thematic studies (legislation and regulatory instruments, participation, technology, sectoral and territorial co-operation, role of EU policy and information). The purpose of the demonstration programme was to lead to a consensus regarding the necessary measures in order to stimulate ICZM in Europe and to identify concrete actions that need to be taken for the implementation of ICZM, to discuss these widely and to prepare all involved parties for their adoption. What needed to be demonstrated is that improved co-ordination of parties influencing coastal zones evolution leads to sustainable development, as it was also referred in the 5th action programme for the environment, where it was determined that the responsibilities for environmental protection must be shared by all who participate in the economic activities,

including the government authorities, public and private enterprises, as well as the general public. Thus, the demonstration programme was articulated around three key words: co-ordination, co-operation, concertation.

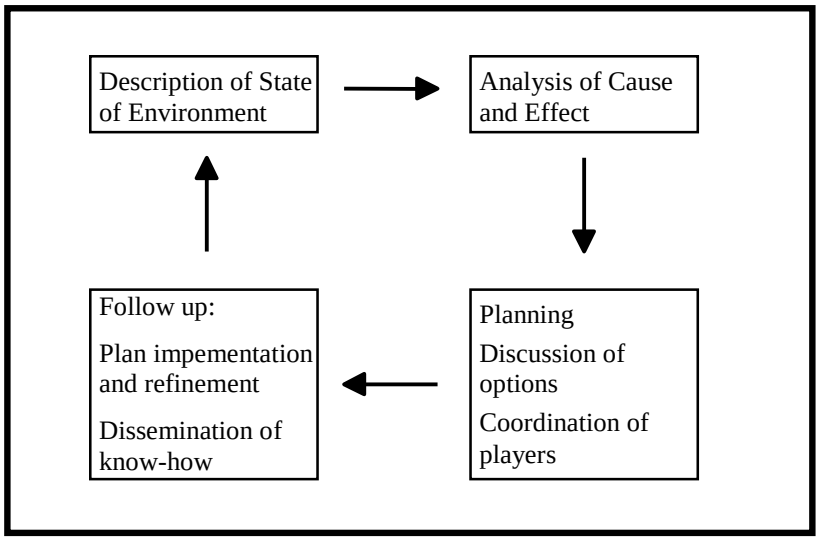


Figure 1: The steps in the Demonstration Projects – a cyclic process

The 35 demonstration projects were implemented in target coastal areas around Europe, following the cyclic process shown in Figure 1. These projects provided the raw material, based on which, the Commission formed proposals for a European Strategy on Integrated Coastal Zone Management. One of those projects was the Strymonikos project, entitled “Concerted Actions for the Management of the Strymonikos Coastal Zone”, and funded by the LIFE instrument, with the purpose to contribute to the development and implementation of Community environmental policy, through concerted action in the Strymonikos coastal zone. It was implemented by two research institutes, namely the Fisheries Research Institute and the Greek Biotope/Wetland Centre.

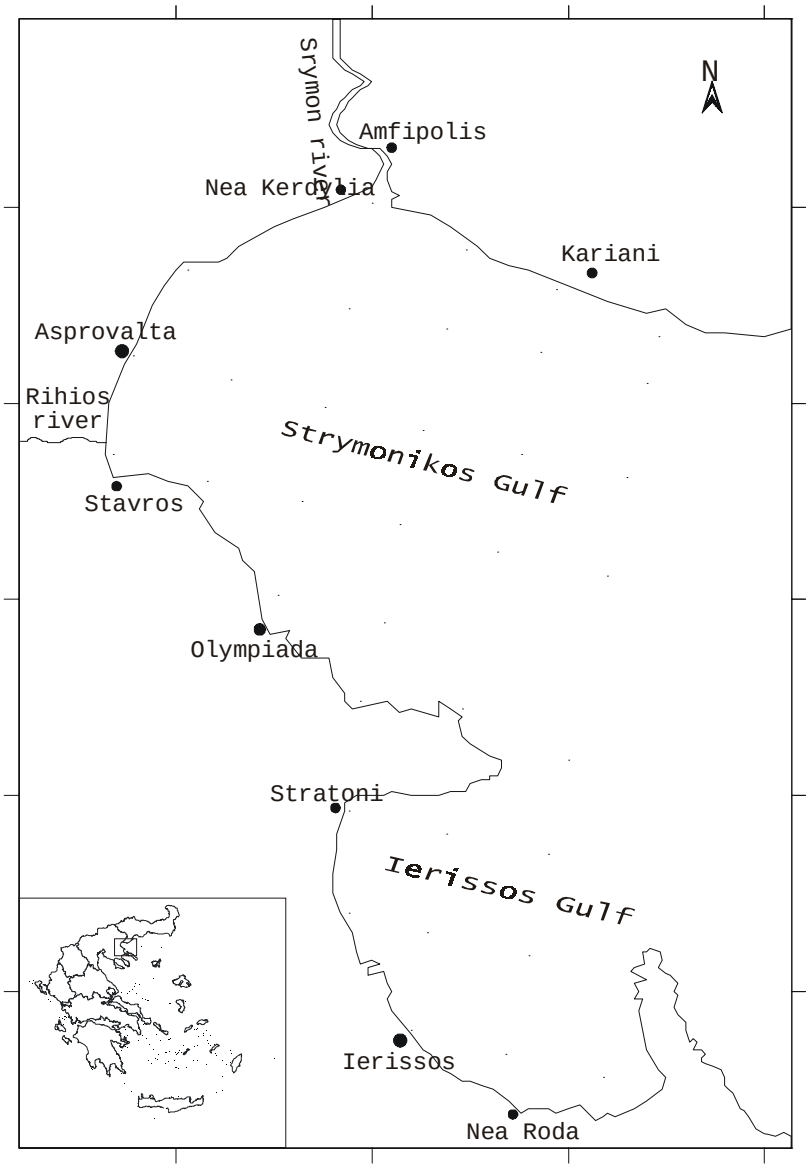
Case Study: The Strymonikos Project

The coastal zone of Strymonikos Gulf is rich in natural resources, scenic landscapes and features of cultural interest. Moreover, the Strymonikos Gulf is one of the richest fishing grounds in the North Aegean Sea. The permanent population of the coastal zone is around 15,360 people but it rises to 150,000 during summer time. The terrestrial part of the zone is 2,625 ha and the marine area is 8,135 ha, so that the total is 10,760 ha. The coastline is 123 km long (Figure 2). Within the project zone, three areas covering a total of 730 ha, in the terrestrial part, have been proposed for inclusion in the “Natura 2000” network (Dafis *et al*., 1996).

Human activities in the area include mass tourism, poorly controlled housing development, fisheries, aquaculture, agriculture, forestry and mining. These activities are not always practised wisely, leading to increasing environmental problems, such as pollution and landscape deterioration. These problems will become far more serious in the coming decades, as a result of the expected increase of tourists from the Eastern European countries. Also, mining activities in Chalkidiki are changing and a factory for gold extraction was designed to be created in the area, posing additional threats to the environment. The Egnatia highway, which crosses the project area and will connect the Ionian Sea with Asia, is now under construction. Finally, it must be considered that River Strymon discharges pollutants from its Bulgarian and Greek watershed into Strymonikos Gulf.

When discussing coastal zone management, we have to consider issues such as *what* we are going to manage, i.e. *what* are the specific features of the particular coastal zone or what are the environmental problems if any, *how* to manage, a question involving the preparation of specific management plans and, of course, *who* is going to be involved in the management, a basic issue that largely triggered the initiation of the ICZM demonstration programme. Finally, some complementary actions are necessary for integrated coastal zone management, such as those related to the dissemination of information and the raising of environmental awareness.

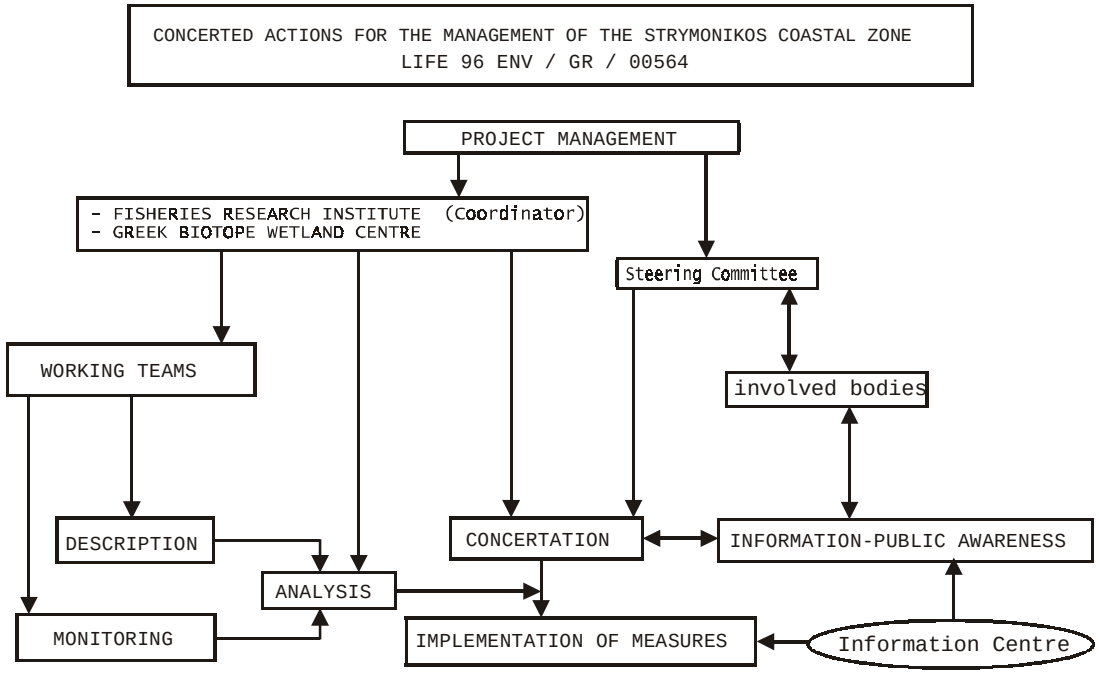
Figure 2: Map of the project area



Based on the above, and on the demonstration's programme basic cyclic process, we organised the Strymonikos project in a set of tasks (see also Figure 3):

- **Description:** This task included a detailed description of the project area, both terrestrial and marine, regarding its abiotic, biotic, social, economic and administrative features.
- **Monitoring:** A pilot programme of collecting key parameters of the zone's marine environment was conducted, in order to identify those parameters more suitable to indicate possible threats.
- **Analysis:** Based on the results of the two previous tasks, we focused on identifying and ranking environmental problems and threats, evaluating trends of environmental changes, setting conservation and management aims, and proposing specific management measures.
- **Concertation:** A co-ordination scheme in the form of a Steering Committee was established, involving bodies responsible for the project zone's management, in order to set conservation and management aims, to decide on priority measures and to co-ordinate their implementation.
- **Implementation of measures:** The main objective of this task was the establishment of an Information Centre for Coastal Zones to support environmental awareness activities, to promote co-operation and to alert authorities on emerging environmental threats.
- **Environmental awareness and dissemination of knowledge:** Publication of awareness material, presentation of the project and of the EU policy regarding the sustainable use of coastal zone resources, organisation of conferences on concerted sustainable management of coastal zones, media work and technical publications of the project results.

Figure 3: Organisation chart of the Strymonikos project



By organising the project in this way, we have tried to cope with the management issues mentioned above. More specifically, the first two tasks (*description* and *monitoring*) answer the question of what to manage, while the *analysis* offers solutions and proposals for the way to manage it. By establishing the Steering Committee, we have tried to construct an appropriate body to initiate integrated management of the area. Finally, with the establishment of the Information Centre and our activities within the framework of the final project task, we have tried to support the complementary actions of environmental awareness and information dissemination.

Problems and Actions in the Strymonikos Project: A Step by Step Process

There were three main problems we had to face when designing and implementing the project: a) the lack of data regarding the natural environment of the area, the socio-economic status and the human activities and impacts, b) the complex and conflicting jurisdictions of the bodies presently involved in the management of the area, and c) the insufficient level of environmental awareness.

In order to cope with the first problem, at the stage of "*Description*", we collected data regarding the climatic, hydrological and geological characteristics of the project zone, and we conducted samplings regarding flora and fauna both in the terrestrial and marine part, and we estimated water quality and the concentration of various heavy metals in the sediment. Moreover, we produced maps concerning the distribution of plants and animals under protection, as well as land use and land cover maps. A lot of work was necessary, since there was a complete lack of data. Three institutes, one university and several external assistants (47 scientists in total) collaborated, representing several fields of expertise. A high biodiversity was observed in the study area, both in terms of habitats and species: a) 24 habitat types, all listed in Annex I of the 92/43/EU Directive, 3 of which are of priority, i.e. Posidonia beds, b) 808 species, subspecies and varieties of plants, 46 of which are endemic of the Balkan peninsula, c) 55 marine macroalgae species and 3 species of marine phanerogames, d) 164 bird species, 46 of which are listed in Annex I the 79/409/EU Directive, e) 21 mammal, 8 amphibian, 18 reptile and 131 fish species; it must be noted that the fish biodiversity observed in the Strymonikos estuaries is one of the highest recorded in the Mediterranean Sea (Koutrakis *et al.*, 2000a), f) 321 species of benthic macrofauna, forming 5 assemblages, one of which is unique for the Mediterranean Sea; 12 cephalopod and 16 crustacean species recorded in the area are of economic importance.

Apart from the area's ecological features, the data gathered in the framework of the project task "*Description*" concerned also human activities and environmental problems. According to these data, the area's chief economic activities are tourism and fishing, followed by agriculture, mining and forestry, and

other activities to a lesser extent. The fish catch is large and includes economically important fish such as whitebait and sardine, and there are also fish farms. The area contains notable antiquities and cultural monuments, and moderately well-developed technical and social infrastructure.

The area's principal environmental problems are the lack of planning for urban and tourist development, the disposal of domestic sewage and rubbish, the degradation of surface and ground waters, as well as that of natural habitats, the declining of fish stocks and, finally, the operation of the Stratoni-Olympiada mines, at least as long as they continue to operate as at present.

The results of the project task "*Description*" were published by Koutrakis and Lazaridou (1999) and distributed to the bodies involved in the management of the area.

Within the second task, "*Monitoring*", a pilot sampling procedure was prepared so as to estimate the levels of eutrophication. Namely, at specific stations, the recording of physicochemical parameters of the water column, and of some key parameters of the Posidonia meadows could indicate whether the area is eutrophic or not. The results of this task were also published by Koutrakis *et al.* (1999) and distributed to the bodies involved in the management of the area.

Within the third task, "*Analysis*", all the above data that were gathered in the framework of the project, were elaborated and synthesised in a brief, simplified and popularised document, which was written in Greek, in order to be used in the dialogue among all bodies involved in the zone's management (Koutrakis *et al.*, 2000b). This document includes a brief description of the project zone, together with data on the valid legislative framework regarding environmental protection of the area. It also includes an evaluation of the area, on the basis of its ecological, social and cultural values, as well as on the basis of the environmental problems and risks recorded. Specific proposals for the implementation of ICZM are listed. These proposals concern institutional changes at a national and a local level, in the frame of the existing legal systems and of laws that are expected to be in force soon, as well as specific measures for tourism, fisheries, aquaculture, groundwater management and conservation of species and natural habitats. We believe that this document may constitute a first plan for ICZM in the Strymonikos area, to be implemented by the body, which will be responsible for the management of the area in the future.

In order to cope with the problem of management jurisdiction and to promote co-ordination, a *Steering Committee* was established, with the participation of representatives of the various levels of public administration. The bodies represented were the two Regional Directorates and the four Prefectures, within the boundaries of which the project zone lies, the Ministry of Macedonia-Thrace, the Ministry of Agriculture (Directorates of Fisheries and of Aquaculture, General Secretariat for Forests and the Natural Environment) and the Ministry of Environment, Physical Planning and Public Works (Directorates of Physical Planning and of Natural Environment Management). The Steering Committee supervised all the activities of the project and collaborated closely with the project team by discussing problems and necessary actions, by bringing forward certain problems of the users of the coastal zone, by operating as a control agency for the better use of coastal resources, or even by offering financial help to the project. Some examples of its multiple role are given below:

- *"Conflicts between coastal fishery and trawlers":* the committee operated as a communication channel, bringing forward a certain problem of the users of the coastal zone.
- *"Sand removal from the Strymon estuary":* the committee operated as a control agency for the better use of coastal resources.
- *"Establishment of the Information Centre for coastal zones":* the committee facilitated the implementation of the project tasks, operating as an advisor to the project team and as a negotiator for all those who claimed for the establishment of the Information Centre in their territory.
- *"Production of an documentary film of the project area for educational purposes":* following various contacts of the Steering Committee members, a participant body offered a great financial help for the better implementation of the project tasks, through public awareness activities.

However, although the Steering Committee supported both the tasks of the project and the ICZM procedure, there were certain problems that need to be pointed out. Since there was no specific law and/or legal management body for the coastal zone, the Steering Committee was not based on any specific legal framework, although the participating bodies do have management, planning and legislating authority. Moreover, co-operation between different agencies is not required by any law. Therefore, there was no adequate legal framework, within which the Steering Committee could continue to operate after the end of the project.

To address the problem of insufficient environmental awareness, the *Information Centre* was established mainly to support relevant activities. It is the only Information Centre focused on coastal zones in Greece. Themes related to coastal zones, such as life in the sea, marine plants and animals, human impacts etc, are presented with texts, photos, relief models, aquaria, stands with seashells, sponges etc, as well as with a documentary film that was created on the ecological and cultural values of the area. The information given is based on data collected in the frame of the project. The establishment of the Information Centre was supported by local authorities in terms of financial help and manpower and by several donations. It helped to increase the confidence of local people in those involved with the project and led to a very positive public response. In many cases we received complaints regarding environmental problems and we alerted authorities to environmental threats. Seventeen months after the opening of the IC, more than 2,500 people, mainly schoolchildren had the opportunity to visit the Centre. Moreover, we obtained its accession into the environmental education programme of the Ministry of Education and we prepared several environmental education school projects. In order to ensure its operation after the end of the project, the Information Centre with all its equipment was donated to the local authorities. Its activities continue and the increasing congregation of visitors affects positively the local community.

ICZM Project Design

ICZM Motivation

Among the four most common and persuasive motives for ICZM, according to Sorensen (1990), are fisheries productivity, increased tourism revenues, and security from natural hazard devastation. Management may be initiated in response to a planning mandate (e.g. national strategy) but more often because of a crisis, such as a use conflict, a severe decline in a resource, or a devastating experience with natural hazards.

Despite the motivation, it should be accepted that ICZM is a multi-sectoral process of achieving goals and objectives of sustainable development, by the utilisation of, and within the constraints of, legal, financial and administrative systems and institutions, through integration and co-operation. It should not be seen as a substitute for uni-sectoral programmes, such as tourism or maritime administration or nature conservation. However an ICZM project can grow gradually from a modest beginning to a more comprehensive effort. It builds in small steps, guided by a large vision; each step is part of the larger plan and each step must succeed if the next is to start (Clark, 1991).

When starting an ICZM project, a proposal may have to be written, describing all activities. This proposal should be based on some prerequisites (scientific knowledge, existence of a national framework, recognition of the values of the coastal area and the benefits arising from their sustainable management, financial aid), the general goals, the boundaries of the area to be considered, the people, institutions, organisations expected to participate, available finance and a work plan with a corresponding timetable (UNEP, 1999).

The stages that are important in the project design are:

- Analysis of the existing situation – goal definition;
- Delimitation of management zones;
- Strategy planning;
- Implementation of ICZM;
- Oversight – Monitoring and evaluation.

Analysis of the Existing Situation – Goal Definition

This stage is quite important as it will input into the formulation of goals and objectives and will lead to the definition of management strategies. Effective progress can only be made when the goals are clear and not conflicting. Of critical importance is the participation of main stakeholders and decision makers in the process of goal formulation.

Information at this stage is very important because available data will be collected and gaps will be revealed. The following information is important to be taken into account (UNEP, 1999):

- The environmental features of the coastal zone, in order to identify the impact of human activities on natural resources and ecosystems and to mark out the values of the particular area (i.e. increased biodiversity, endemic species, etc.). Information that is needed includes basic environmental data

(abiotic and biotic data, topography, hydrology, geology), natural resources (including water, agricultural land, forest, fishery and aquatic resources, natural heritage, minerals), environmental hazards (including floods, geotechnical hazards, cyclones, volcanic activity).
- Spatial (terrestrial and sea) uses (including all economic sectors, urban development, infrastructure) and networks (including water supply and drainage, waste disposal, transport).
- The socio-economic context along with its spatial implications.
- Future developments in the area.

The ideal is to gather all necessary information regarding problems, conflicts, opportunities and constraints. In case information that is considered critical for the formulation of management strategies in the area is missing, then it has to be collected during this stage. Information useful for the implementation of ICZM, can be collected at later stages or during implementation.

Delimitation of Management Zones

Although there is no single definition of the coastal zone, the use of the term indicates that the zone has been distinguished as a geographical zone apart from, yet between, the oceanic domain and the terrestrial domain. In any case, by any set of criteria, the coastal zone is a strip of land and water –a "corridor"- that straddles the coast. However, pragmatically we can't draw lines parallel to the shore; an ecosystem approach, that we also followed in the Strymonikos project, requires the delineation of the terrestrial part up to the closest watershed area, including the coastal ecosystems (e.g. estuaries, lagoons, etc.). The marine area is to be included to a depth of 50 m, which is the maximum depth where Posidonia meadows (*Posidonia oceanica*), valuable ecosystems and nursery areas for many coastal organisms, exists.

Another easy and convenient approach is the use of administrative boundaries, which facilitates information management, co-ordination of actors, data collection, etc. The broader, however, is the coastal zone, the more problematic will be the implementation of the project because of the overlapping and competition among existing authorities. Small island countries, such as Malta, may face difficulties time determining boundaries. Some authorities would consider entire islands as coastal zones because most island commerce and societal affairs have a coastal dimension. But considering an entire island as a coastal area and abandoning the concept of coastal zone as a definable and separable entity, may jeopardise the creation of a viable ICZM project.

Strategy Planning

Strategy planning is the key step in an ICZM project, because the main "*hows*", "*whys*", "*wheres*", "*whens*" and "*whos*" are decided and methodologies and tools are chosen. Of greatest importance at this stage is setting of priorities of action. Strategy planning should develop an optimum strategy that involves issues analysis, dialogue and negotiation that will facilitate local consensus on future conservation legislation.

This is the stage where the needs, feasibility, and potential benefits of ICZM are explored and the basic strategy is decided and articulated in an Action (or Master) Plan that introduces principles and guidelines for management. The Plan links the goals and the objectives with the required policy, the regulatory, economic, and other measures, while prioritising actions (UNEP, 2001). The Plan guides development in the coastal zone in parallel to resource conservation and biodiversity protection, using a variety of approaches. It ensures that advances in one economic sector do not bring reverses in another; for example, that port development does not diminish local fisheries or tourism.

Implementation of ICZM

Once the Action Plan and project details are approved and responsibilities are assigned, institutional mechanisms are created and a budget and staff are authorised, the project can be implemented. Particularly important is that:

- policies are clearly described to match national development objectives;
- responsibilities are clearly assigned;
- a lead agency is assigned to co-ordinate the project;
- the lead agency has the power to enforce rules or to achieve intergovernmental co-ordination and consent;
- funds to achieve ICZM are available.

According to the lessons learnt from the EU demonstration programme, an individual or a group with an understanding of the principles of ICZM and the drive to push the process forward can be a great asset to ICZM initiative. A secretariat is also normally necessary to co-ordinate the logistics of the initiative and organise the required information. However problems may arise if the lead agency is not regarded as even-handed, or is perceived as a threat to other participants (EC, 1999b).

Political and financial support is dependent on the level of awareness of decision makers. Political leaders should understand the cross-sectoral scope of coastal management and the consequences of mismanagement.

In the Strymonikos project it wasn't possible to implement all the actions proposed in the Action Plan, since institutional changes were required. However effort was made for strategy planning, the preparation of a management body (Steering Committee), the development of infrastructures such as the Information Centre for the Coastal Zones, and conflict resolution.

Oversight – Monitoring and Evaluation

Retrospective aspects may include monitoring, evaluation and plan and programme revisions. In practice the above stages are not so discrete and linear as theory suggests. Instead, there will be feedback and revisions of earlier stages, as new facts and opportunities come to light in later stages. The whole project must be flexible and adaptable. Empirical evidence indicates that during the implementation of the project, although the initial goals do not change, some of them may lose their initial importance and others may gain significant importance (UNEP, 2001).

Monitoring is a continuous process, starting from the beginning of the project. It is an important element of any planning process, and is linked directly with the assessment of the performance of the ICZM project and the results achieved with respect to the goals and objectives that were initially defined. Monitoring is a tool that feeds periodically the strategy planning and leads the interventions closer to the principles and guidelines of management defined by the Action Plan. Usually, for practical purposes, monitoring is concentrated on some key parameters.

Evaluation, on the other hand is not a continuous process, but it is performed at selected time intervals, usually in the middle of, and after the completion of the project. It needs to be characterised by objectivity, credibility and representation ensuring that key local and national stakeholders are involved in the monitoring and evaluation process (UNEP, 1999).

Key Issues in Planning ICZM Projects

Information

Information is a key issue for ICZM. It should support the analysis of issues usefull to the management of the area. Information gathering should be led by the issues, as ICZM is an issue-driven process, and not by the facility of the data collection. In the Strymonikos project, where there were no data available and there was the perspective of building an industry for gold extraction on the coastal zone, we had to point out the environmental values of the area (i.e. increased biodiversity), the values of the natural resources and the social constraints for such an activity, since the area was tourism oriented. Not all projects will need such an extensive data collection, however, existing data must evaluated; they have to be precise, complete, compatible and statistically credible.

Participation

It is important to use participatory planning in order to build consensus. Participatory planning is seen to comprise both the co-operation and collaboration of administrative partners involved in different sectors and levels of government, and the participation of non-governmental bodies, organisations, private sector and individuals affected by the management of the coast. Moreover, acceptance and trust by both citizens and politicians seems to be an important objective in these cases. A pragmatic approach is to ensure that everybody knows what everybody else is doing or is going to do in the near future.

What has been shown repeatedly from the EU demonstration projects, is the importance for all of the levels to be involved in their own capacity and sphere of competence. Almost without exception, the projects have indicated that local ICZM activity is not effective when there is a policy vacuum at high levels (EC, 1999b).

In areas with low environmental awareness, which are usually developing areas, the environmental conservation aspect could be accused for retardation of the development of the area. Through participation it can be shown that long-term economic development strongly depends on environmental quality, i.e. fisheries and tourism depend on the coastal water quality. Kelleher (1996) states that "… participation that is not actively encouraged is not real participation. You' ve got to go out there. You' ve got to go through the process of distrust before you get to the process of trust. You' ve got to be prepared to be insulted, contradicted, even threatened. You have to prepare yourself psychologically".

Tools/Instruments

A variety of tools can be used in ICZM projects, at the stages of analysis of existing situation, information management, strategy planning and implementation. These include data bases, Geographic Information Systems (GIS), Decision Support Systems (DSS), Environmental Impact Assessments (EIA) Strategic Environmental Assessment (SEA), Risk Analysis Assessments (RAA), economic evaluation of costs and benefits, environment-development scenarios, Carrying Capacity Analysis (CCA), regulation and control of financial mechanisms, new technologies for the study of the coastal zone, awareness, capacity building, training and education, and conflict resolution (UNEP, 1999).

The demonstration programme has shown that whilst management tools (such as GIS and DSS) have a valuable part to play in achieving ICZM, their successful use requires careful management in their own right. Such systems tend to be expensive in both financial and personnel terms and care must be taken to ensure that the technology used serves the clear objectives of each project stage does not become an end in itself. It is important to recognise that information is just one element of successful management. An effective GIS providing quality information does not, in itself, ensure successful ICZM. Only with the knowledge necessary to understand the coastal zone and its problems can information be integrated into the management process. Management tools are designed to manipulate data, or to move data from place to place. However, management tools cannot *understand* what they manipulate. Only *people* can gain that understanding. Therefore, decisions about whether to use a particular tool should always involve an analysis of how the tool will enhance understanding of the issue at hand (Doody *et al.,* 1998).

Public Awareness and Education

Public awareness plays a major role in the success of ICZM projects. In all cases where coastal zone management is effective, conservation awareness is usually high among communities, managers, *and* the private sector (Clark, 1991).

Environmental education aims to provide the community with information and a conservation ethic so that its members can make informed decisions about the use of their resources.

The approach must combine printed material, audio-visual presentations, and face-to-face interaction. Depending on the target audience and budget a variety of additional options can be employed: mass media, fixed exhibits, tours, training workshops, sale of promotional items, such as T-shirts, and informal recreational activities with an educational focus.

Public awareness was an important issue in the Strymonikos project. Through the creation of an Information Centre for Coastal Zones, environmental awareness and education was promoted, mainly to the schoolchildren of the broader area.

The importance of public support was made clear in the Strymonikos project, since the reaction of the local people to the imminent creation of an industry of gold extraction, through active manifestations and through legal interventions, such as the appeal to the Supreme Court of Greece, have given positive results. The creation of the industry is temporarily stopped.

Dissemination of information is also valuable in order ensure repeatability of positive project results. This can be done both towards the scientific community by using publications in scientific journals, presentations in congresses, etc., and towards the decision makers of each country, through reports, proposals etc. In the Strymonikos project great effort was given towards dissemination of information (Kokkinakis *et al.,* 1999;

Koutrakis *et al*., 1998, Koutrakis & Lazaridou, 1999; Koutrakis *et al*., 1999; Mihalatu *et al*., 1999; Sylaios *et al*., 1999; Koutrakis *et al*., 2000a; Koutrakis *et al*., 2000b; Koutrakis *et al*., 2001; Stamatis et al., 2001; Sylaios & Koutrakis, 2001; Stamatis *et al*., accepted; Sylaios *et al.*, submitted), since promoting ICZM was one of the key objectives of the project.

Conclusions and Future Prospects

During the past years several initiatives to implement ICZM have been realised (EU, UNEP/PAP, MCSD, etc.). The value of these initiatives is significant since we have to build on existing experience and practice so as to increase synergies and minimise losses (UNEP, 2001). Of course ICZM is not a panacea for all the problems of coastal areas, nor is a universal tool applicable in the same way in all coastal regions. However, there are elements that are universal, such as the gradual process of ICZM implementation, while other elements must be understood and applied with flexibility (UNEP, 1995). Furthermore, experience with environmental action programmes and regional planning work has clearly shown that sustainable development is being implemented too slowly in relation to the gravity and complexity of the problems of the coastal zones. Specific joint action by the Union and the Member States is therefore required in order to improve the effectiveness of legislation and of the existing financial and planning tools (EC, 2001).

Our experience from the Strymonikos demonstration project shows that a good knowledge of the environmental, social, economic and administrative features of the area to be managed is the essential first step in planning integrated management and sustainable development. Also, continuous monitoring of the area is necessary to detect environmental changes. Moreover, the Information Centre has proven to be a very useful tool for supporting actions of environmental awareness, training, dissemination of information, and for promoting participation of the public and local authorities as well. However, co-ordination in the form of a legally instituted management body is indispensable for the implementation of ICZM. The multi-agency partnership of the Steering Committee was just an example of a good operating and co-ordinated management scheme, since it was only informal. The deficiencies in legislation are still present and pose substantial obstacles to concerted management of the area.

The ICZM Demonstration Programme has now come to an end, although some of the projects are still carried out. The final reports of the thematic studies have been issued. Two consultation documents (EC 1999a, EC 1999b), a Commission proposal for a European Parliament and Council Recommendation (EC 2000a) and a Commission Communication (EC 2000b), have been prepared and distributed. According to these documents, the European Commission is not going to forward certain legislative measures for coastal zone management, but to promote the integration of ICZM principles and goals into the various sectoral policies. However, although this is indeed an important step, it does not ensure ICZM as a unique and integrated process, an inseparable part of which is the sustainable use of natural resources. Our experience has shown that only a legal binding can promote sustainable management and environmental protection. This could be either in the form of a Council Directive or of an engagement for the implementation of a convention (e.g. Barcelona Convention), even if due to the flexibility needed in the coastal zone issues, the Directive should address to the fundamental principles, rather than the detailed mechanisms. Given that a framework Directive for ICZM by the EC would be difficult to produce, due to the complexity of coastal zones, the sustainable management of the latter must be ensured at the national level. Each country should prepare and adopt a national strategy for coastal zones on the basis of ICZM principles, which will guide associated legislative acts, that among other issues will institute legal management bodies and ICZM projects.

This last conclusion comes in agreement with the recent Recommendation concerning ICZM, issued shortly after a political agreement within the Environmental Council (29/10/2001), calling EU Member States to develop national strategies that promote sustainable development in coastal zones through integrated management of these areas, within the next 3 years.

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Increasing the Effectiveness of Coastal Zone Management (CZM) Projects: Optimal Conditions vs. Practical Realities

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Abstract

This paper is based on the premise that effective Coastal Zone Management (CZM) is continuous **process** involving the concerted actions of actors over an indefinite time period. CZM **projects** therefore have an inherent weakness – being constrained within defined and relatively short time periods.

CZM projects must therefore seek a balance between the need to demonstrate practical, concrete results within the project period, and the creation of optimal conditions in which CZM as a process can continue into the future.

Three key building blocks of the CZM process are discussed with recommendations on how projects can seek to recognise or optimise each:

- The Governance Environment;
- Information and knowledge;
- Participation and partnerships.

Underlying the analysis is a recognition that achieving effectiveness – judged in securing change in the long term – depends on engaging with the local circumstances of the coast concerned. In achieving this engagement, technical aspects of CZM become subservient to the understanding and use of social mechanisms and the application of some practical psychology. In this analysis, effectiveness is achieved through an **issue-led, people-centred, locally specific** approach.

Introduction

Individual CZM projects vary in their technical and scientific approaches to coastal management. They are often judged primarily by the degree to which they meet the global, macro objectives set for them at national or supra-national level, primarily by their sponsors. But the *real* effectiveness of a CZM project – judged in terms of promoting a lasting change in the way in which the coast is managed – will be determined by the degree to which it engages with the local context of the particular coast in which it is implemented. To reconcile these potentially conflicting perspectives requires the recognition of the difference between CZM as a *process* and CZM as a *project*.

Coastal Zone Management as a Process

The Bruntland report and Rio Convention both identified the need for the sustainable development of the coastal zone. The multidisciplinary process "Coastal Zone Management" (CZM) is seen as the means to achieve this. CZM is a process which brings together all those involved in the development, management and use of the coast within a framework which facilitates the integration of their interests and responsibilities. CZM "is a continuous, proactive and adaptive process of resource management for sustainable development in coastal areas".

Similarly, "the aim of this coastal zone management process is seen as the achievement of common objectives, and to provide programs for the protection and sustainable development of coastal resources and environments".[4]

So, CZM is seen as a process. No time limits are identified – only the need to achieve concerted actions of actors over an indefinite time period within the overall aim of sustainibility. Specific goals may change overtime and CZM should be able to respond to unforeseen events. Actors may come and go, and budgets

[4] Coastal Zone Canada 2000

should, ideally, be continuous and flexible. Most importantly, for CZM to function as a process requires an "enabling" cultural, legal and political framework.

Coastal Zone Management as a Project

A project on the other hand is a planned sequence of connected activities that has a defined set of goals. Projects must be completed in a specific time (usually dictated by funding), within budget and according to an agreed specification or plan. In the real and imperfect world in which we have to operate, funding agencies promote relatively short-term actions – projects – as a means of achieving change in the long term. Projects are usually chosen through a "beauty contest" in which the successful contestants are chosen by their ability to meet predetermined programme criteria and outputs. Only rarely do projects operate at more than one administrative or spatial level. In most cases, the projects are funded at the national or supra-national level and implemented at the micro, local scale.

So, CZM projects may be of high scientific and analytical quality, but not designed to meet the specific realities of local situations.

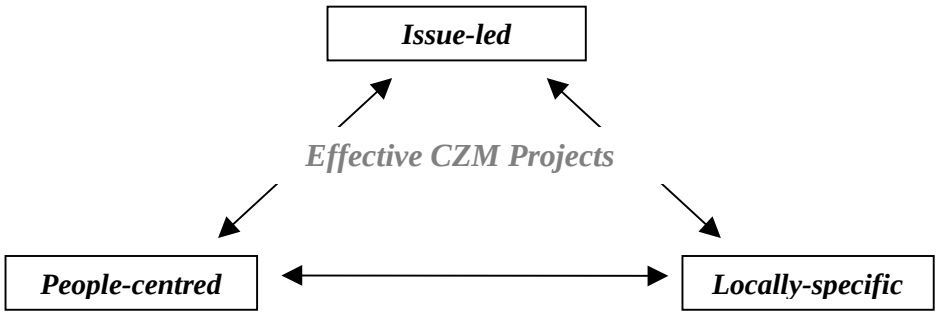
Given the fundamental differences between CZM as a process and CZM as a project, the challenge for projects is to demonstrate practical, concrete results in the short term whilst creating conditions in which CZM as a process can continue into the future. A strong element of realism, pragmatism, and the application of some practical psychology is therefore required.

This paper will consider practical ways in which we can engage with the reality of a local situation and, in particular, engage with the aspirations of the local community and decision makers in a way that promotes real long term change. Underlying this analysis is a recognition that, as Godet writes in the prologue of his book on analysis and strategy,

> *"Dreams fertilize reality… The human creature can not be restricted to common sense; he acts also under the influence of sentiment. The rational and the inventive trends of strategic planning are complementary, only prima faciae they seem opposite".* [5]

Analysis of successful CZM projects around the world indicates the importance of three closely inter-related approaches to their design and implementation, approaches that reflect Godet's perceptive thesis. Generally, such projects are issue-led, people-centred and locally specific. The interrelationship between the three can be expressed in this simple triangular form.

Figure 1: Inter-related approaches to design and implementation of CZM projects



This paper will therefore consider how we can apply this practical approach to three key building blocks of CZM:

I. The Governance Environment;

II. Information and Knowledge;

III. Participation and Partnerships.

These are considered in turn below.

[5] Godet, M. 1991. *De l'anticipation à l'action. Manuel de prospective et de stratégie.* Paris: Dunod

I. The Governance Environment

The first stage of successful CZM is embedding it into the local systems of governance.

> *"The system of governance, and the extent to which sustainability is integrated into it, represents the key to successful advocacy of sustainibility, since, if it is to be more than a political gesture, it must be fully woven into the fabric of policy making."* [6]

Administrative systems vary enormously. In Europe for example, these range from the extensive regional autonomy enjoyed by the autonomous communities in Spain to countries such as Portugal, where there is no regional authority outside of the island regions. The political philosophies on which administrative structures are based vary just as much, from the rigidly structured and centrally prescribed, to the devolved, German federal "länder" system. Legal systems are also just as complex and CZM may include both statutory actions, such as the control of development, and non-statutory actions such as land management and voluntary co-operation.

Given such differences it is reasonable to argue that there is no single model of CZM to fit all circumstances. Indeed, we should be very cautious in assuming transferability from one governance environment to another.

However, the preconditions required to promote sustainable development may be common to all. So, the extent to which the following preconditions are met in any given situation should determine the basic "architecture" of the CZM project: and constitute the "Governance Environment".

Political Will

Is CZM a shared vision between both technicians *and* the politicians in the area concerned? Furthermore, is the vision shared throughout the political and administrative structure? For example do the federal, regional and local structures share common objectives?

Truly integrated "horizontal" integration is rare. CZM often originates at the supra-national level, through for example, the Rio and Barcelona Conventions and the recent EU Recommendation on ICZM, and has to rely "trickle down" through national, regional and local structures to implementation at local level. This trickle down is generally achieved through short-term financial incentives and, less commonly, the imposition of statutory responsibilities or obligations.

The resulting picture is one of inconsistency and fragmentation, of "pilot" and "demonstration" projects, but little secure, consistent long-term action. This discontinuity between the central "will" for integrated CZM and the local concentration on ad hoc, single issues is reinforced by the fact that the vast majority of decisions on the coast are likely to be taken at the local level. In the case of the UK, a study by the National Coasts and Estuaries Group estimated that 80% of all decisions on the coast are taken at the local level. Therefore, both the quality of coastal areas and the effectiveness of CZM projects may subject to what the Australian Coastal Commission referred to as the "tyranny of small decisions" rather than the noble aspirations of international conventions.

The development and securing of support of local political support, within and beyond the lifespan of the project should be an essential project objective.

Resources

Most commonly, resources for CZM projects originate from the higher levels in governance structures in the form of grant aid or other financial incentives. The many EU programmes and the USA discussed below are examples of this.

The financial promotion of CZM at the regional and local level in isolation of central support mentioned above is rarer. Local administrations on the coast generally restrict activities to their limited statutory

[6] Putting Sustainibility into Practice in the Coastal Environment, CoastLink. 2001Conference Report

responsibilities or to immediate, ad hoc single sector issues with a direct impact on their local community. Examples of this abound and include examples such as sudden increases in plankton biomass in the Mediterranean likely to affect tourism, or coastal erosion in the European North Sea or eastern seaboard of the USA.

But it is not just financial resources on which CZM depends, human resources are equally important. CZM itself requires a combination of intellectual and professional skills. Few countries have developed a significant core of coastal professionals. Exceptions include the Netherlands, USA and Spain where engineers have traditionally held a dominant position, developing considerable expertise and resources, the latter two examples, concentrated within the military corps of engineers.

The availability of requisite skills at the local level is often the key to the success of a CZM project. Inevitably these vary, often reliant on a single individual. In many cases the expertise is held in research and academic institutions rather than the local authority. Experience from the recent EU Demonstration Programme on ICZM recognised the importance of key individuals with in the 35 local "demonstration projects". In these cases the effectiveness of CZM was found to be highly vulnerable to staff changes.

Assess local resources: financial, institutional and human.

Legal Frameworks

National legislation for CZM

The case for influencing or promoting national legislation as a precursor or a part of a CZM project may be considered. Only a few states in the world have enabled CZM to take place at the local level by enacting national legislation. The examples of the USA, Australia, Canada and New Zealand are discussed below.

- The United States bases CZM on flexibility within a federal structure. A broad definition of the coastal zone at federal level permits individual states to adopt more precise boundaries that suit their particular geographical situation. The US Coastal Zone Management Act specifies the national objectives of CZM policy whilst offering states the benefits of financial grants and "federal consistency". Implementation methods selected by US states are equally varied, and include comprehensive ICZM legislation, framework acts and non-statutory co-ordination schemes.
- The Australian federal system adopts a non-statutory ICZM policy at national level, and encourages and supports the participation of states and territories through funding and other initiatives such as "Coastcare", a national program that encourages community involvement in the protection, management and rehabilitation of coastal and marine environments. CZM legislation is a regional mechanism that has been chosen by some, but not all, Australian states.
- New Zealand is exceptional as a non-federal state in incorporating CZM into a comprehensive reform of environmental law. Such a fundamental change inevitably requires considerable political will, and could not be introduced without the general consent of participants. The Resource Management Act reflects the importance of the coastal zone as part of a wider environment, and legislation for the coast should not be considered in isolation, but must be compatible with other environmental laws.[7]

In most cases elsewhere however, CZM will have to rely on existing legal frameworks not specifically designed to promote CZM.

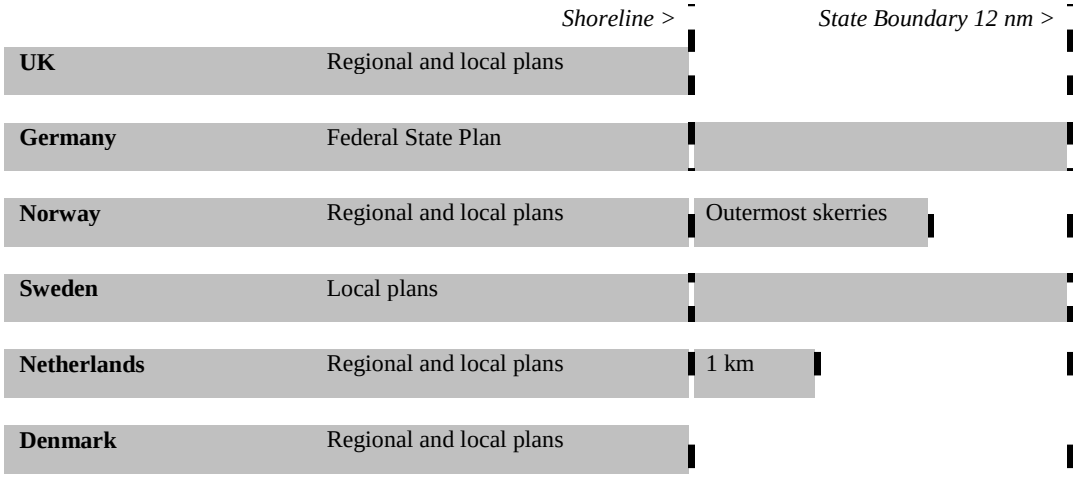
Spatial Planning

Most states have some form of spatial planning at regional and local levels. Coastal areas pose special problems, in particular the integration between terrestrial and marine areas is rarely achieved. Even in the North Sea, bordered by states claiming relatively sophisticated planning systems, there is little or no integration between these two areas. Although in most of these countries the regional councils are responsible for regional planning, they have little say over use of inshore waters. The responsibility for

[7] *Legal and Regulatory Bodies: Appropriateness to Integrated Coastal Zone Management*, J. Gibson, 1999, EC Contract

marine areas is split between several central and regional offices. The outer marine boundaries of the spatial planning system also vary considerably as shown below.[8]

Figure 2: Comparative spatial planning boundaries on the North Sea coast



In the Mediterranean, spatial planning systems do not generally extend offshore. Coastal zones for the purposes of development are generally restricted to a narrow strip extending up to 50, 100 or up to 300 metres from a defined tide line, ownership and the control of development is often vested in the state as in Italy and Spain. In France, the *Conservatoire du Littora*l, which is a public administrative body established in 1975, has acquired 750 km of shoreline. Most acquisitions are made by private agreement, but compulsory expropriation is occasionally used in the public interest.

Greek law for example (Law 2344/1940,) defines the "foreshore" as a strip of land washed by the highest winter waves – a Roman law concept, which is found in many legal systems based on the civil law, and refers to an area under public ownership. The same Law defines the "shore" as the adjoining strip of land within 50 metres from the landward limit of the foreshore, on which the erection of buildings is prohibited.

In 1988, Spain enacted a national Shores Act *(Ley de Costa*s), which was intended to reassert State ownership over "coastal public property", which had increasingly become privatised, and to protect it from the effects of inappropriate development on adjoining land.

In addition to spatial legal demarcations, virtually all states around the world are subject to sectoral demarcations. Government ministries jealously guard their sectoral responsibilities with little attempt at co-ordination.

So the ability of a CZM project to tackle the strategic issues extending either a significant distance inland or offshore may be severely constrained by legal and institutional frameworks.

Effective CZM is therefore limited by:

- inappropriate legal demarcation between land and sea, and the subdivision of natural areas such as estuaries that ought to be managed as a whole;
- conflicting and inflexible sectoral legislation;
- unnecessary legal restrictions on co-operation between authorities and on the purposes for which their powers may be used.

The extent to which a CZM project is constrained or enabled by the local legal framework is a key consideration in project design. It may also be relevant to consider the development of legal frameworks as a CZM project in its own right.

[8] *NORCOAST – recommendations on Improved Integrated Coastal Zone Management in the North Sea Region*, County of North Jutland, 2001

Institutional Capacity and Maturity

The maturity and the related issue of capacity, of governance systems can play a significant or even determining role in the long-term effectiveness of CZM projects. Given political will and resources, a mature system should be able to incorporate CZM into its processes. Many European states, particularly in the north possess sophisticated Agenda 21 mechanisms, enjoy wide community support, developed administrative cultures, long established databases and technical resources to map and measure sustainibility. However, many states particularly in the south and east, may still be attempting to consolidate new governmental structures with limited resources. Local administrations in these states may still lack democratic legitimacy with their client community, technical resources such databases and sophisticated mapping facilities. Critically, these administrations are dogged by problems of horizontal and vertical integration as the various, relatively young levels of administration seek a balance of power.

CZM projects in these areas present very particular problems, and the promoters of projects should incorporate this consideration into project design. Too often however, projects based on a "northern" model, concentrating on technical issues without regard to the maturity and capacity of local systems to deal with them.

One notable exception, a project, which set out to tackle the problem of system maturity, is the "Magnesia ICZM Project" in Greece funded under the EU LIFE Programme from 1997-2000. The "step" approach to building administrative capacity and a "consent" environment for CZM is worth considering as a model for other areas.

The Magnesia ICZM Project – a step approach to building a "consent" environment

Greece is currently attempting to consolidate new governing structures. Decentralisation has been in progress since 1985 with the creation of Prefectural and Municipal Authorities and elected Regional authorities. At the start of the Magnesia project power balances between the various levels had yet to be resolved. As the then Secretary General to the Ministry of Spatial Planning put it: "the application of spatial policy is the result of political volition and power balance both in the local and central level" (Bariatos, 1999). Conflict was the predominant political and administrative culture, technical and human resources were relatively poor.

The project operated at the Prefecture level comparing the traditional "regulative" model of planning – in which experts prepare a plan which is then put forward for discussion – with a "participatory" model in which all actors participate in a process from the initial problem identification stage through to proposing solutions.[9]

The initial attempt to develop a wide dialogue involving public bodies, NGO and the private sector in the "participatory" approach proved unsatisfactory. Discussion became entrenched and failed to break new ground. The experimental stepped approach was established as an alternative. Five Working Groups were established comprising officials from within the Prefecture. Each had a research objective agreed by the officials themselves at the start of the project.

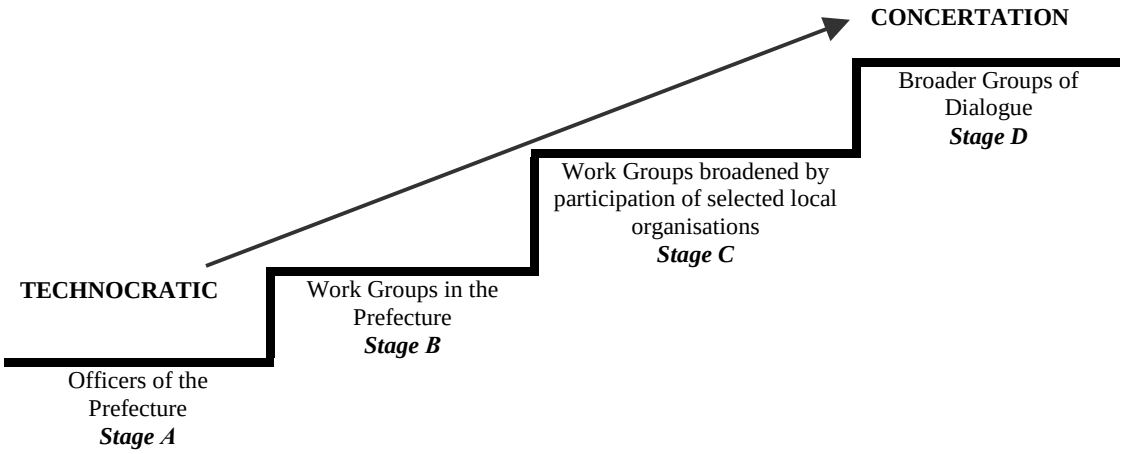
The objective was to sensitize and promote the active involvement of the Prefecture employees in issue recognition and resolution – an issue led approach. It was the first step for the development of a more specific problematique, which was gradually enriched through the participation of selected local agents and individuals and aimed to result in broader dialogue groups, as described in the Figure 3.

Along with other capacity building measures, the key results of this process are encouraging as a foundation for CZM in Magnesia in the longer term:

- The sensitization of Prefecture officials to critical issues and their commitment in innovative ways of coping with them.
- The creation of a core group of 10-15 individuals who will constitute a coastal management team within the Prefecture beyond the Project time schedule.
- The integration of work based on cooperation among all the involved agents, building a consent environment instead of conflicts based on predetermined roles and prejudices.

[9] *Managing the Coastal Zone Through Information and Consent*, Geskou Ifigenia. 2001, unpublished

Figure 3: Magnesia: a step approach to building a "consent" environment



Work to enhance the capacity and maturity of local administrative systems can be an investment of fundamental value to achieving the long-term sustainability of the CZM process.

II. Information and Knowledge

The need for relevant and readily available information and knowledge is rightly considered vital for CZM. Advances in technology have dramatically increased our ability to record, store, analyse and exchange vast amounts of data and information. In the past decade in particular, CZM projects have been heavily focussed on developing innovative methodologies in the management and use of data and information about the coastal environment.

Yet there remain major technological, cultural and institutional barriers between the data and information community and the decision-makers on the coast – the so-called "Information Gap". Despite technological advances, the quality, relevance and availability of much of the data and information produced is considered irrelevant, unreliable or remains unknown to the decision-makers at the local level. The underling cause of this "Information Gap" is well expressed in the following quote.

> *"Data does not equal information, information does not equal knowledge; and most importantly of all, knowledge does not equal wisdom. We have oceans of data, rivers of information, puddles of knowledge and the odd drop of wisdom."* [10]

The gathering and provision of raw data, followed by processing into various levels of information and knowledge is most relevant to the understanding of systems at the macro-scale. However, at the local scale, in a CZM project, there are very real risks being seduced by the siren song promises of new technologies and of drowning in "oceans of data". The real challenge for CZM projects is to develop practical systems for the management of information, knowledge and wisdom targeted to the real-world needs of users – a bottom up approach.

One of the most comprehensive discussions of the role of knowledge and information for the coastal zone was the first "Info' Coast" Symposium held in the Netherlands in 1999. The symposium brought together coastal managers and information providers to develop a common agenda. The resulting report set out a set of guiding principles and recommendations that provide a useful checklist to aid project design.

[10] Nix H. *"A National Geographic information – an Achievable Objective?* AUSISA Conference. 1990.

Info' Coast "Guiding Principles"[11]

- ***Data collection and collation*** should be strategic and transparent, issue led, with a user focus developed through effective communication;
- ***Technologies*** should be designed to be fit for purpose (and not necessarily leading edge) and match the needs and capabilities of end users;
- ***Information Availability*** should be improved through better user awareness, making data and information available for uses other than their original purpose, free or low-cost accessibility of publicly-funded work and provision of standard maps and charts of the coastal zone;
- ***Information and knowledge flows*** should be facilitated by consistent use of simple metadata records accessible through internet-based and other gateways; and
- ***Awareness-raising and capacity-building*** to enhance understanding between providers, users and their needs should involve improved education, in-service training, resource availability and marketing.

The strong message from these guiding principles is that there needs to be strong focus on user needs and capacity building. They also challenge the "systemic" approach in which observation builds the object of knowledge – the top-down approach. Instead they support the "relativist" approach, in which information about reality does not exist before the action of observation: it is created when a subject meets the object of knowledge – a bottom-up approach. Information is data in context: it has meaning, relevance and purpose. Hence the manager requires information which is "fit for purpose" and do not always need fully validated numerical models and decision support tools.

Models and Decision Support Systems

The relativist approach also challenges the use of complex technology-based models in the coastal environment. As computing power has increased there has been a growing interest in the possibility of modelling the coastal environment. However, attractive and impressive such models may have seemed, there is a growing scepticism amongst coastal managers that they are capable of predicting the behaviour of a complex living system such as the coast. As the anthropologist and social scientist Gregory Bateson put it:

> *"If you kick a stone, the result is predictable in principle, one can calculate the trajectory of the stone before actually kicking it... Kicking a dog, however, is a different matter."* (Gregory Bateson, 1972)

The unfortunate metaphorical dog may travel along a Newtonian trajectory if kicked hard enough, but this is mere physics. What is important is that he may exhibit responses energised not by the kick but by his metabolism; he may turn and bite. Such is the habit of the coastal environment with its hugely complex interaction of physical, biological and human systems. There are many unfortunate examples of the coast "biting back" in unforeseen ways to our intervention. Saint Augustine expressed the same dilemma a millennium and a half before when he said:

> *"Miracles happen not in contradiction to nature, but in contradiction to our understanding of nature."*

In a partial recognition of these problems, coastal science has moved from predictive modelling to "Decision Support Systems". So-called intelligent "soft" computing systems designed to enable researchers, managers and decision-makers create and evaluate differing scenarios for the coast. Systems such as SimCoast™ claim to provide a vehicle for incorporating multi-sectoral expertise and local knowledge into an "expert" system.[12]

Such systems have yet to demonstrate their claimed potential, partly because of inevitable technical problems, but also because of major differences in perception of their practical value between the system designers and potential end users. Systems are expensive to develop and support, require training of users, considerable computing power and (the Achilles heel of many such systems) massive inputs of local data and expert knowledge. In addition the rapid development of ICT often leaves models obsolete before they are operational. Because of their reliance on historic data and past experience they risk repeating the past rather than anticipating future problems.

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[11] *"INFO-COAST '99, 1st European Symposium on Knowledge and Information for the Coastal Zone"*, Noordwijkerhout, Netherlands, Symposium Report. 1999

[12] McGlade, Rosenthal, Bottrell and Price. *Promoting Multi-use Concepts in Coastal Zone Planning and Management through the Development of Decision Support Systems,* ICZM for Germany and Europe, GEOMAR, Kiel. 1999

In the planning and development of CZM projects, it is the practical value we should concentrate on in evaluating the role of technology.

Information technologies for CZM should be designed to be fit for purpose and match the needs and capabilities of end users. "Fit for purpose" is the key phrase – the user should be the first point of reference in the collection of data and the development of tools supporting CZM.

Smart Communities

Once again, in the debate on knowledge and information the key issue in project design is one of communication. The ideal model is one in which those who need information, and those with local, indigenous knowledge of their coast, can work in partnership with researchers and experts to support an agreed, sustainable development strategy. Such an ideal model has been described as a "smart" community. Originally developed as a tool in community development, smart communities are defined as communities with a vision of the future that involves the use of information and communication technologies in new and innovative ways to empower its residents, institutions and regions as a whole.

Western Valley of Nova Scotia, Canada

The collapse of the fishery in the Western Valley of Nova Scotia forced the region to look strategically at its long-term future. Information technology was seen as a way of delivering new jobs and support sustainable development. The community wanted to see the natural environment and the rich culture and heritage preserved, but at the same time, to take advantage of the knowledge economy to move into the 21st century. A range of information technology initiatives driven by a community-based partnership were initiated, they include a Geographic Information Systems (GIS) platform and an interactive database of municipal, provincial and environmental information. Through the exchange of information about the region's environment and natural resources, the system is expected to support the work of everyone from research scientists to fish harvesters. The project recognised that the flow of information is a double-edged sword. Offering a wealth of knowledge to the Bear River First Nation and on the other, offering the First Nation the opportunity to share its knowledge and culture with the world.[13]

In the coastal context I have widened the definition of a smart community to one in which:

> *"...specialist scientific knowledge and local understanding of coastal systems can exist side by side and inform each other."*[14]

The Cornwall Coastal Environment Research Forum

This example from the remote Cornwall region of the UK is an example of a smart community based on dialogue. The Forum was established after a major spillage in 1992 of metal-contaminated mine waste into the local marine environment. The incident was the focus of intense interest by the research community, but a conference in 1994 revealed a lack of communication between researchers and managers, between scientists themselves, and with the local coastal community whose lives were most affected by the disaster. The Forum was established to bridge the information gap and is now in its 7th year with a membership of 700 and an annual conference. The Forum provided a social situation in which scientists from the physical, natural and social sciences, archaeologists and artists could interact. Local knowledge – of port managers, fisherman and recreational sailors and surfers – was respected and valued as equal. The Forum provided a market place for the development of research and, most importantly, for face-to-face contact. This concept has now been copied in other UK regions.

The popularity of the Forum approach in the UK reflects the findings of a survey of 1000 coastal managers in Australia that found that face-to-face contact was by far the most important source of coastal information.[15]

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[13] http://smartcommunities.ic.gc.ca/

[14] Author, *Developing a Smart Coastal Community*, CoastNET Bulletin, Manchester, UK. Spring 1999

[15] Brown and Burke, *Between the Devil and the Deep Blue Sea: the Information and Research Needs of Australia's coastal Managers.* 1993. Canberra, Commonwealth of Australia

The key to the development of such a smart community lies as more in the formation of the community of shared knowledge than in the development of information technologies.

Local Indigenous Knowledge

Science is one knowledge system amongst many others on the coast. Other knowledge systems, embedded in coastal cultures and sustaining both traditional and contemporary ways-of-life, constitute a rich and diverse intellectual resource deserving of respect. Coastal communities often have a close understanding of the resources on which they depend. Such "local" or "indigenous" knowledge of coastal habitats, fishing grounds, lunar cycles, tide, wind and climatic patterns may be accumulated and transmitted from past generations as in the case of a fishing community. Alternatively, local knowledge may be found in modern commercial and recreation users through regular and intense use of coastal resources. In traditional coastal communities, bodies of local knowledge are empirically based, pragmatic and primarily behaviour-oriented and includes detailed information required to locate and harvest coastal resources or ensure safety or high performance. Typically, it was shell fishermen who were amongst the first to alert the world to the damage brought about by TBT.

"Community-Based Coastal Resources Management (CBCRM)"

Since the 1970s an approach to coastal resource management has emerged In the Philippines, that involves local communities in managing their resources. This community-based coastal resources management (CBCRM) is people-centred, community-oriented and resource-based. It begins where the people are (i.e. what people already know) and builds on this knowledge to further develop their understanding and reach a new level of consciousness. The CBCRM approach recognises and respects cultural diversity and strives to harness the use of indigenous knowledge and experiences in developing management strategy, thus enabling a greater degree of flexibility and adaptation in development.[16]

"Surfers Against Sewage", UK

Local knowledge can include the capacity for transformation and adaptation with new technologies and modern coastal uses. The extraordinary success of the UK "Surfers Against Sewage" campaign is a striking example of specialist recreation community pooling knowledge and information in a highly respected political lobby campaign to bring about real change in policy and practice and practice on sea water quality.

Local multi-sectoral partnerships can raise awareness and promote networking and face-to-face contact, between scientific and other disciplines, and provide a vehicle for the exploitation of local, indigenous knowledge.

The Relationship Between Information and the Policy Process

In addition to informing the decision making process, information is also a core part of the policy process. This is an area which has received less attention – but is equally important. Information is a political commodity, a bargaining tool, a tool to advocate established interests and positions. The closer you come to decision-making, the greater the possibility that information is used as a weapon. The use of information in the formulation of policy to manage rising sea level demonstrates this as the various lobbies, such as farmers, conservationists and local communities argue fiercely for their favoured response of coastal protection or "managed re-alignment".

Nowhere are such debates of such importance to the political process as in the Netherlands. Henk Smit of the National Reference Centre for Nature Management in the Netherlands has set out a number of suggestions to promote the effective use of information in the policy process based on their experience of advising government.

[16] Ferrer, Elmer, *UNESCO World Conference on Science Proceedings,* Budapest, Hungary 1999

*"**a) Separate information and the problem**. Try to separate an agreement on information from one on the problem. Instead promote joint fact finding in the case of opposing views. Joint fact finding can build trust between interest groups and be used as a deliberate step in the policy process.*

***b) Information understood by stakeholders.** Provide information that is recognised and well understood by stakeholders. That means: make as much use of local resources of information. Don't rely too much on ICT as long as the parties have not yet adopted ICT as their language. The perception of the value of the information may be worth as much as the information itself.*

***c) Quality related to decision.** The quality of information depends on the decision to be taken, rather than the scientific standards of the provider. Although this seems obvious the reality is often very different... this requires special attention for the information providers who have to reconcile the wish of politicians to have 'simple figures' with the requirement to handle information honestly."*[17]

This surprisingly honest appraisal of information as a political weapon is an interesting one in that the Netherlands has a high level of perceived consensus on coastal policy, high ICT and GIS usage and awareness, and a mature political process.

Seamark

In 1998 the Ministry of Agriculture, Nature Management and Fisheries (LNV) in the Netherlands developed a vision for the future of the Dutch coastal zone, "Images of the coast as a seamark for the future". The vision consists of just seven images presenting the LNV's suggested scenario for future management of the whole Dutch coast – each image consists of a brief description and an artist's aerial view of the coast – rather than the conventional GIS. This vision is seen as an aid to dialogue with the ministry's governmental partners, NGO's and other partners. The vision is also a building block for future governmental policy and planning documents and as an aid to an "open interactive process". By the use of artist's impressions and simple descriptive concepts the information was accessible to the non-specialist.

At this visioning level the information is global and aimed at creating a direction of thinking rather than building a detailed robust scientific case. Only at the next level, when investigating the environmental impact of specific proposals is more precise information introduced,[18]

Recognise the role of information as a legitimate political tool. Information to support policy-making should be issue-led. The quality and presentation of information should be related to the decision making process.

Knowledge Management – "clouds of knowledge" and Single Windows

The management of knowledge to meet such a complex range of needs in the dynamic environment of the coast becomes a prime issue in itself. GIS and other databases can handle spatial and temporal information. However, large and equally relevant areas of information and knowledge remain. These range from cultural issues, indigenous knowledge and expertise, best practice, political and financial programmes, to real time information. It is clearly unrealistic to expect all this to be gathered together into one large centralised database. This phenomenon has been recognised as the "cloud of knowledge" (see Figure 4) and the key to its management lies in the provision of metadata (information about information and data).

[17] Smit H, "INFO-COAST '99, 1st European Symposium on Knowledge and Information for the Coastal Zone", Noordwijkerhout, Netherlands, Symposium Report. 1999

[18] Beentjes, De Feijter, Hazendonk, Pelk, water, De Win. *Images of the coast as a seamark for the futur*e. Ministry of Agriculture, Nature Management and Fisheries, Den Haag. 1998

Figure 4: Clouds of Knowledge

Metadata, and the systems that manage metadata, should provide a pointer to where data, information *and* knowledge exist, what it consists of, its format, who owns and manages it and what limitations there are on its use. Traditionally, such metadata systems would have not been feasible or have relied heavily on key individual with years of experience. However, the Internet now provides the obvious flexible and infinitely expandable platform for such a system through which relevant organisations combine together to deliver information through a "Single Window".

In the coastal context, this single window approach is probably best developed in Australia. This reflects both the importance of coastal management to the Australian Government and the high level of Internet usage in that country. Two initiatives in particular are considered here: the Australian Coastal Atlas and the Western Australia Coastal Data Centre.

The Australian Coastal Atlas (ACA)

The ACA was initiated under the national Commonwealth Coastal Policy in 1995. As a metadata system it is limited to spatial on-line geographical data, but its success lies in the bringing together of a very wide partnership of agencies at federal and state level – approximately 100 agencies are involved with the ACA. The value of the common interface, spatial data and metadata standards has been recognised. But, most importantly, the ACA has achieved political support and is valued by coastal managers as a "networking" tool.[19]

Western Australia Coastal Data Centre (CDC)

This Internet based data centre lies within the overarching framework of the ACA; it provides the "single window" to information held by different organisations and in a mixture of database and real-time formats. Designed to develop and expand over time, this includes: a range of Coast Cams, searchable databases of plans and surveys, coastal news and information, nautical chart index, information on coastal engineering, tidal and real time ocean wave data.

The goals of the Coastal Data Centre[20] are to:

- "be accessible to users with basic or sophisticated computer communications (government, business, schools or home);
- develop software to help coastal managers;
- encourage/assist participants who can provide/maintain their own databases;
- search local and/or 'distributed' databases;
- intuitive keyword/thesaurus search criteria."

Although the examples quoted above are still predominantly about information and data management, the inclusive social and political processes by which they have been developed and managed have improved the

[19] http://www.environment.gov.au/marine/coastal_atlas

[20] http://www.coastaldata.transport.wa.gov.au/

flow and exchange of knowledge within the coastal management "community" over the vast coastal area of Australia.

Inevitably such systems are expensive to develop and, more importantly, expensive to maintain in the long term. The problem for project developers considering the use of such tool lies in what happens after the end of the project period? In order to maintain credibility, metadata systems require constant "feeding" over an indefinite time. The web is littered with out of date or ill-managed sites for which funding has run out. It is important to take this into account at the project development stage. The success of the Australian examples lie in their "fit" with prevailing Government policy on access to information via the Internet and have become a model for the development of other metadata systems in Australia. Networking and customer feedback has played an important part in developing a constituency of support for the systems and the Australian examples have that important "gov" address. It is essential therefore that the business case for such systems is considered early rather than at the end of the project funding period.

Single Window knowledge management systems can help users to access the "clouds of knowledge" and bring information providers together in a common purpose. The business case for the long-term management of such systems should be considered in project development.

III. Partnerships and Participation

Perhaps the greatest challenge facing a CZM project is to establish a meaningful partnership of interests to ensure integration and, beyond that, reach out into the wider coastal community. In this section the general principles of such a process are set out followed by a discussion on some of the practical issues facing CZM projects.

Perhaps the largest study of partnership and participation in CZM was carried out as part of the European Commission Demonstration Programme on Integrated Coastal Zone Management. 35 local projects were studied across Europe and the consultants drew the following conclusions:

European Commission Demonstration Programme on Integrated Coastal Zone Management

The thematic report on participation for the EC Demonstration Programme[21] drew the conclusions listed below which can make the process seem almost unachievable in practical terms:

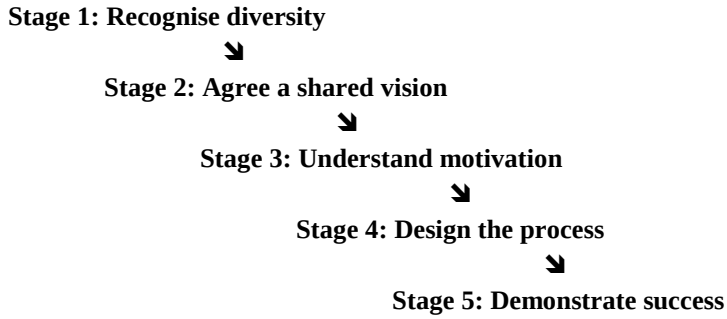
- *"Participation is an essential ingredient of ICZM – the projects demonstrate the value of stakeholder involvement in moving towards improved co-ordination and concertation.*
- *It can take many forms from consultation to empowerment and self-mobilisation – it is difficult to be prescriptive, but approach should be clearly identified and relevant procedures agreed.*
- *It requires partnership at all levels, especially the commitment of national and regional government departments and agencies.*
- *Public participation at the community level needs special scrutiny and careful planning, using special mechanisms. It should be kept as simple as possible.*
- *Participation must be organised in conjunction with the main planning process for ICZM in order to ensure openness and transparency.*
- *National cultural differences do exist – some building on democratic tradition, others using ICZM to foster the local democratic process, but issues, scale and geography are also important elements.*
- *Conventional techniques are frequently sound and useful, but more innovative practices should be explored and assessed.*
- *ICZM is a good vehicle for implementing the EU goals of subsidiarity and integration, with many initiatives arising at the local level.*

[21] King G. *"Participation in the ICZM Processes: Mechanisms and Procedures Needed"*. European Commission Demonstration Programme on Integrated Coastal Zone Management, Thematic Report NE80194. 1999.

- *Good information nourishes the participatory process – the practice of sound science remains essential, but needs to engage with assignment of political values.*
- *Professional skills cannot always cope with such wide-ranging and diverse interests.*
- *Individual training, capacity building and institutional strengthening are a widespread necessity – for authorities, NGO's and/or individuals.*
- *Participation is difficult to sustain in the long term, with risk of fatigue by stakeholders – regulatory bodies will be required to continue exercising their statutory functions for the coast in an integrated way.*
- *Resources – in skill, time + finance – will continue to be troublesome.*
- *Projects need to plan their exit or succession strategies at an early stage.*
- *Aspects of participation are now becoming a statutory requirement through EU and International Agreements such as the Aarhus Convention.*
- *Participation is not a panacea. In an interdependent world, ICZM requires institutional support at all levels."*

As an aid to planning future projects this list is a daunting one. However, drawing on the experience of successful projects, it may be possible to derive a few simple rules transferable to diverse situations. These are summarised below in a deliberately simple analysis into a 5-stage approach.

Figure 5: Practical Issues in Building Partnerships and the Participation Process – a 5 Stage Approach



Most of the recommendations below are drawn from the author's own experience in the UK and in European partnerships and Canada.

Stage 1: Recognise diversity

"Man' is the most irregular verb." (Greek)

"There's nowt (nothing) so funny as folk." (English)

Building partnerships and participation at all levels is not an exact science – it's about people and it's about cultures. So, any methodology will be subject to cultural variations – what works in the UK may not work elsewhere – as one French observer put it at an international meeting of CZM project leaders in 1999.

"It's alright for you English to talk about voluntary co-operation on the coast – but you play cricket and we could never do that in France." [22]

The comparative national psychology underlying that statement is highly complex and controversial – but it summarises very effectively the difficulty of deigning a "common approach" that transcends continental and national boundaries – or even within national boundaries – and between developed and undeveloped coasts.

In less developed coastal area, deep-seated inter-dependencies in local social, family and cultural structures may be a powerful driver. In St. Peter's Bay, Prince Edward Island, in Canada for example, strong familial and social ties between shell fishermen and local farmers provided an important vehicle for dealing with water quality problems caused by diffuse agricultural pollution.[23]

[22] EU ICZM Project Leaders meeting, Lisbon, June 1998.

[23] *"Recommendations for St. Peters Bay, PEI, Canada"* US/UK Stewardship Exchange. Countryside Commission & US Countryside Institute 1993.

Alternatively, on heavily developed tourist, port or industrial coasts, agendas may be driven by corporate and governmental agendas from remote metropolitan centres. Decisions and opinions are formed within corporate structures that may be hundreds, even thousands of kilometres from the coast.

The definition of stakeholders requires sensitivity to local circumstances and a "gradualist" approach to partnership building. The St. Peter's Bay example revealed that a complex web of family structures, tensions between long-established residents and recent "in-comers" and other local issues were preventing objective consideration of a major condominium development proposal on the area's fragile dune system. Sensitive "honest brokering" by a neutral team and an incremental building of community cohesion through small collaborative projects, eventually led to the re-siting of the development proposal and the designation in 2001 of the dunes as Greenwich, Prince Edward Island National Park, Canada's most recent national park.

Recognition and sensitivity to the cultural and social context of the individual CZM project is important.

Stage 2: Agree a Shared Vision

> *"Do not all charms fly*
> *At the mere touch of cold philosophy?" (John Keats, 1820)* [24]

CZM is about people and place – it's not just technical exercise. As the English poet Keats realised as early long ago as 1820, we need to keep our technocrats firmly in their place. The coast can be one of our most dramatic landscapes, stirring deep emotions; a physical and a psychological frontier, a place of danger and hard won living, of rest and tranquillity or of enjoyment and leisure, even a spiritual landscape or symbol of national identity.

Start with, or build, a "shared vision" with our stakeholders, our partners, our community that recognizes these qualities.

In my own area we began with a simple understanding to underpin work on the coast:

> *"Cornwall is the coast – 450 miles of cliffs, beaches, estuaries and harbours, the coast is vital to the health, wealth and very* ***spirit*** *of the county*[25]*."*

It can be as simple as that – recognition, in an increasingly homogeneous world that the place is special and unique. Often, CZM projects fail to recognise such underlying consensus and *assume* conflict – between users or between sectors. By assuming conflict or using it as a starting point in the CZM process we may be creating it a self-fulfilling prophecy. Better to start with a positive message that all stakeholders can sign up to.

Stage 3: Understand motivations

Why do people participate? Motivation to participate or join partnerships may be one or a combination of the following. Each one is equally valid and can be used to promote the partnership/participation process.

- **Duty –** *"I have to participate"* – increasingly, around the world, legislation is placing a statutory duty on organisations to co-operate in environmental partnerships.
- **Tradition –** *"I expect to participate"* – the strong Scandinavian tradition of local participation or the north American "town meeting". The US National Oceans and Atmospheric Administration (NOAA) have even transferred the town meeting concept to the Internet to promote discussion on coastal futures. In other areas, often those with a tradition of strong central government control, the expectation may be the opposite.
- **Status –** *"I want to be seen to participate"* – being invited to participate confers status – many of the UK's voluntary Coastal Forums can be characterised by this. Such voluntary fora were found to be less successful elsewhere in Europe.

[24] *Lamia Pt. 2,* John Keats, 1820.

[25] *Atlantic Living Coastlines Coastal Strategy*, Cornwall County Council, Truro, UK, 2000.

- **Self-interest –** *"What's in it for me if I participate?"* – self-interest can be a powerful and constructive motive for partnership. A study of port operators in San Francisco revealed that they saw partnership as a valuable, low coast source of advise and support in meeting new environmental standards.
- **Passion –** *"I **want** to participate"* – the most basic motivation of all, often driven by a deep concern for the area or the desire to be part of the decision making process.

Within any partnership structure some or all of these factors will be operating.

Stage 4: Designing the process – a checklist

The following checklist of factors that supported successful CZM partnerships is drawn from the experience of CoastLink network of European coastal authorities.[26]

> ***"Experience and continuity –*** *Partnership takes time. There are no 'quick fixes' or substitute for local knowledge and understanding.*
>
> ***Resources*** *– Participation requires money and people – plan ahead.*
>
> ***Neutrality*** *– The project lead body must have trust of all or most of stakeholders.*
>
> ***Mutual respect*** *– The coastal community is an expert community – fishermen, port operators, sailors share a different but equally expert view of the environment to the scientists and planners – CZM should be a partnership of equals.*
>
> ***Project champion*** *– Is there a local project champion? A figure respected in the community who can lead the project.*
>
> ***Communication, Openness and Simplicity*** *– The CZM process is based on consent and must therefore be transparent. No jargon, no technical terms – keep it simple. Restrain your technicians and train them to collaborate with local stakeholders.*
>
> ***Demonstration Projects*** *– Small scale, practical projects – early wins – to bring stakeholders together and demonstrate the value of collaboration.*
>
> ***Control*** *– Emphasise the value of working together at the local level to counter control from the centre. – "Why sit at the back of the bus when you could be driving it?" If you don't take control of the process locally someone else will, probably from outside the project area.*
>
> ***The Place*** *– Agree the shared vision."*

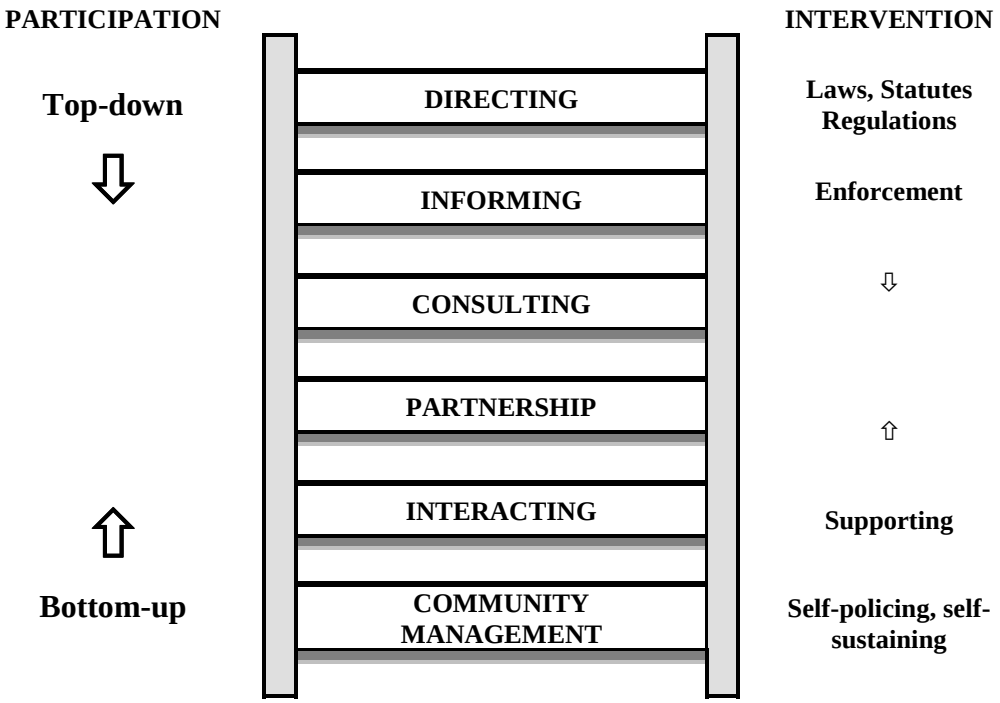
A well-recognised model of participation used in development planning is the "ladder", which effectively summarises the degree of local "ownership" of the development process.

Optimal sustainability is considered to have been reached on the lower "rungs" of this ladder as communities operate in a self-sustaining way, requiring only supporting actions from governmental and other agencies. In reality, examples of such harmonious conditions in the coastal environment are rare. One example however is the "No Take Zone" approach to fisheries management pioneered in New Zealand. Fishermen themselves manage local fisheries; intervention from the authorities is limited to scientific, financial and enforcement support.

Geographic scale will also determine the degree to which full participation can take place – generally, the larger the area in size and population the more difficult it is to engage the wider community.

[26]Shipman B. *Factors in Successful Coastal Partnerships – the CoastLink Experience,* TERRA Programme conference, Naples. 1998

Figure 6: The Participation "Ladder"



Stage 5: Demonstrate Success

Finally, effectiveness is based on the perception of success. The dilemma however is that the various levels in the CZM project may have a radically different perception of how that success is defined.

Success for sponsors is often relatively easy to define, being measured in the quality of a final report and compliance with the wider programme objectives, final reports and recommendations, financial targets met etc., plus some specific concrete actions.

But success at the local level – to secure that elusive, long term "engagement" and sustainability – will often be measured in more pragmatic terms. Without the local confidence, the security of long term plans and strategies will be threatened. The inclusion at the project design stage of short-term, confidence building objectives is proposed to achieve this.

Confidence building – early "wins"

As demonstrated in the Magnesia example discussed earlier, building confidence within a partnership is essential. In the community development field this issue has long been recognised, the securing of early "wins" or successes is seen an essential part of the process as a precursor to achieving wider aims. In the coastal context such early wins will vary according to local needs.

Ipiros, Greece

As part of the development of coastal fora and the management of coastal tourism in the Greek region of Ipiros, local project managers worked with local communities to develop a series of tourist trails linking coastal resorts such as Parga with cultural sites inland. Although a relatively small project in itself, the development of these trails became important tools to develop confidence in the wider partnership and demonstrate the value of working together.[27] Although this example is based in a relatively undeveloped coast its methodology can translate to more industrial coastal areas.

Tamar Estuaries Coastal Forum, UK

The Tamar estuaries in the southwest UK include the major naval and civil ports of Plymouth and is comprises 6 six separate local authority administrations plus the military and civil port authorities. The

[27] Integrated management of the coast of Ipiros, TERRA network no. 13 CoastLink 1997 -2000

Tamar Estuaries Coastal Forum was established in 1994 to provide a forum for communication and overcome traditional local hostilities and lack of co-operation. A series of small scale projects including common signing of waterside facilities and access, a "water events" diary, beach cleans and information for visiting yachtsmen have led to larger strategic projects including; a common GIS, co-ordinated emergency oil spill planning and a management scheme for the Marine "Natura 2000" site. The larger port interests, both military and commercial have recognised the value in cost savings alone of the partnership approach. The original 3 year project is now in its third cycle and a recent survey showed an over 90% "very high" satisfaction rating for the Forum.[28]

Bringing it all together – the role of indicators

Sustainable development indicators (SDI's) provide a unifying theme for both measuring performance, bringing together sectoral interests (horizontal) and vertical integration between the various geographic and administrative scales. It is accepted that such SDI's should "cascade" from the international, through the national and regional, to the local level. According to the UN Commission on Sustainable Development in 1998:

> *"Indicators for monitoring progress towards sustainable development are needed in order to assist decision-makers and policy makers at all levels and to increase focus on sustainable development."*

Indicators at international level are generally beyond the remit of CZM projects. However, there is considerable scope for the identification of local indicators within CZM projects – and the indicator selection process itself becoming a tool in promoting long-term co-operation and partnership.

The means of selecting SDI's is the subject of debate. On the one hand are those who advocate a rigorously technical "framework" approach – such as the OECD Pressure-State-Response model (1994) with its later additions of further parameters such and "Impacts".

Alternatively, there are those who advocate indicators being chosen by the stakeholders and the public in a participatory process.

The former "framework" approach can be deemed the most scientific, identifying measurable, causal relationships in the environment. Its weakness however is its failure to adequately incorporate links between economic and social activities and environmental change. The weakness of the latter "public selection" method is its lack of clarity with regard to causal effects and the potential for shifting preferences according to environmental "fashions".

Neither approach is mutually exclusive. Indicators are neither the exclusive intellectual preserve of the technocrat or of the wider public. We do need the scientific rigour of causal effect in order to respond with robust decisions, but we must also recognise that self-regulating sustainability requires a consensus amongst stakeholders of the basic issues.

> *"Indicators of sustainable development need to be developed to provide solid bases for decision making at all levels and to contribute to a **self-regulating** sustainability of integrated environment and development systems." (Agenda 21, Chapter 40.4)*

A combined approach?

CZM projects can provide a vehicle for "squaring this circle", and reconciling the seemingly dichotomous approaches. Too often the very issues chosen as the subject of the CZM project are selected in a top-down fashion, within a government or research establishment, resulting in feelings of distrust or disinterest in the local community.

The inclusion of a participatory process, as discussed throughout this paper, in the selection of themes and issues strengthens the engagement and legitimacy of the project with the community most affected. This logic can be extended to the design of local indicators based around those issues. Through a dialogue, the technical rigour of the framework approach can then be applied to the issue and themes. A matrix approach has been suggested in order to accommodate this combined approach.[29]

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[28] *TECEF Best Value Review*, Plymouth City Council, 2001.

[29] *Indicators at a European Level for Coastal Zone Characterisation and Management*. Lourens J.M. et al, RIKZ/LNEC, Netherlands, 1997

Figure 7: Indicators – a combined approach

THEME/ISSUE	Indicator(s)	Pressure	State	Impact	Response
Pollution					
Climate change					
Resource depletion					
Coastal erosion					

This simplistic model and the mechanisms used to select indicators can be adapted to suit various geo-political levels. At the highest level it is likely that the indicators will be pre-selected according to the sponsor programme, allowing international comparison. However at the local level they are likely to be very different. Integration between the levels is not impossible – a "Pyramid of Indicators" integrating the various levels, providing they all conform to the simple tests of:

- Relevance – are they relevant, both to the stakeholder and to the coast?
- Measurability – can they be measured?
- Comparability – can they be compared, between areas and between levels?
- Targetable – can they be targeted by interventions and actions?
- Meaningful – are they meaningful in terms of sustainability?

Indicators play an important role in both the development of a CZM project and the measurement of its effectiveness in the long term.

Conclusions

CZM is a truly multi-disciplinary activity and the design of effective projects must take account of social processes. The implications of this for both project and programme design are fundamental, affecting resources both financial and human. CZM is placed firmly in the social and political arena, whether challenging the nature of decision making on the coast and the legal processes, or provoking debate on coastal issues, themes and futures.

Recognising the social and political dimensions also increases the degree of risk associated with a project. Technical aspects of a project are relatively easy to measure and apply, but people by their very nature are unpredictable. Social processes are also less easy to define in terms of time – reaching a consensus "takes as long as it takes". This dilemma is not new, but in a world in which projects are ever more driven by the need for "measurable" outputs and short time scales to meet programme objectives, the risk to both the programme and project managers is an uncomfortable one.

On the other hand however, engagement is more likely to guarantee long term success beyond the project time span and the development of a true CZM process. Participation enriches that process – bringing to the discussion a wealth of local knowledge, ideas and unconventional means of problem solving.

Project Design

This paper has taken a deliberately community-based perspective on the issue of effectiveness, reflecting the importance of process in CZM. Applying this to project design, four key areas can be considered.

CZM Tools

A new perception of the role of data and information is required – if we are to close the "information gap" between providers and managers, data and information must be seen as means to an end rather than ends in themselves. In many cases this may involve a step back from high technology solutions to simpler, more accessible "fit for purpose" solutions.

Under this analysis, tools such as GIS may have a role, but their effectiveness is only as good as the capacity within the project area to use, interpret and update them during and beyond the lifespan of the project. Other tools, such as Environmental Impact Assessments, Strategic Environmental Assessments, Carrying Capacity Assessments, Cost Benefit Analysis, can only function with political and social commitment to support their outcomes.

Participatory tools such as negotiation, conflict resolution and arbitration require a preliminary process in which the stakeholders define and agree the issues which are the subject of these tools.

CZM Instruments

The considerations of capacity and of political and social commitment apply to CZM instruments – both legal and financial. Regulatory instruments such as land-use planning, marine resource allocation, codes, standards etc. can only function as effectively as the ability, resources and the will to enforce them. Similarly, economic instruments such as charges, subsidies, quotas, fines or incentives require effective administrative structures in which to operate.

CZM Techniques and Structures

The choice of techniques and structures of a project – including the choice of lead agency, the skills of the project team, management and partnership structures – hold the key to the achievement of effective outcomes. The most effective are those which are embedded within the project area itself and integrate the key stakeholders into project management. Imposed solutions are the least likely to be effective in the long term.

Programme Design

Projects can only operate within criteria and parameters of their sponsoring programmes. The design of the programmes themselves is therefore critical to project effectiveness. This raises a number of questions for programme managers. In particular:

- Should the financial and temporal structures of the programme be sufficiently flexible enough to allow "up front" preparation and capacity building prior to full-scale technical implementation?
- Should project evaluation measures include both technical and social criteria, and what indicators should be used, and at what level?
- Can the global programme aims recognise and accommodate local objectives.

The relatively short time frames of programmes may be well suited to the implementation of individual technical projects, but the achievement of truly effective integrated coastal zone management requires long term and sustained action – this can only be achieved within robust systems built on a durable social consensus.

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