



UNITED NATIONS ENVIRONMENT PROGRAMME
MEDITERRANEAN ACTION PLAN



FOR A SOUND COASTAL MANAGEMENT IN THE MEDITERRANEAN



PRIORITY
ACTIONS
PROGRAMME



Towards Sustainable Development in the Mediterranean Region

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PREFACE

Dear reader,

This publication focuses on the situation, trends and perspectives in the Mediterranean coastal regions, and the Mediterranean Action Plan's concerns, achievements and future actions in safeguarding the qualities of coastal areas, as well as securing the sustainable development for the benefits of their population.

Coastal areas, although relatively small, are considered to be the most valuable part of national territories in most of the countries of the region. Coastal areas are also environmentally fragile and prone to conflicting situations in their use. People move to coastal areas in large numbers, from within and from outside of the region, permanently and seasonally. In many respects, Mediterranean coastal development is a key to sustainable development of the entire region.

The publication presents the progress in the approach to coastal zone management in the region in the last 25 years. This approach has been transformed from sectoral environmental management to integrated coastal area management. It also shows how coastal areas have become the central pillar in most of the policies that Mediterranean Action Plan (MAP) is proposing to the Contracting Parties of the Barcelona Convention in their efforts towards achieving sustainable development.

Many facts presented in this publication centre on the activities of the Priority Actions Programme Regional Activity Centre (to many, better known under the acronym PAP/RAC) that has become the MAP centre specialised for coastal zone management. Its respective role and achievements have been recognised by many in the Mediterranean, as well as outside of the region. However, since coastal zone management is not a single sector activity, its implementation has to be performed by a number of parties. Thus, this publication takes a somewhat wider view upon the activities in the field, and gives a tribute not only to MAP for its efforts, but also to many other regional actors.

This publication is part of a series, having the common denominator of informing you about the Mediterranean region's leading commitment towards sustainable development. The other publications focus on a number of issues: saving biodiversity as part of our life heritage; protecting the region from

maritime accidents and illegal discharges from ships; cleaner industrial production; the MAP legal framework; the updated review of MAP; and MAP achievements towards sustainable development. Furthermore, two other publications deal with a specific issue of reducing land-based pollution in the Mediterranean Sea, and the MAP operation strategy for this purpose.

After reading this and other publications in the series, you may take the chance of becoming even more involved in our activities and share our commitments to sustainable development for the sake of our present and that of future Mediterranean generations.



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1. THE MEDITERRANEAN BASIN

1.1. The State of the Mediterranean Sea Ten Years Ago

The Mediterranean as a semi-enclosed sea presents unique geomorphological, hydrological, climatic and environmental features while at the same time being vulnerable to human activities and pressures. The state of the Mediterranean Sea and its coastal areas has deteriorated as Mediterranean coastal zones have become subject to significant pressures from a range of socio-economic activities.

In the 1980s and early 1990s, urbanisation intensified, mainly around major port areas and urban agglomerations, as a response to the high demand for residential and recreational facilities. This expansion reduced the space available for natural ecosystems and their biodiversity. Uncontrolled urbanisation has been the major cause of atmospheric pollution, altering drainage and sedimentation patterns in coastal areas and resulting in erosion. Urban growth is associated with an increased demand for domestic water. The treatment and disposal of urban solid waste and effluents constitutes a major environmental issue. Industry established in cities or on the coastline or major rivers, also intensified pressures on water resources for cooling and waste disposal purposes.

Major environmental problems associated with industry were land-use conflicts, pollution of the marine and coastal environment, and soil

contamination through waste production and atmospheric pollution. Energy generation contributed to atmospheric pollution in the Mediterranean region through the burning of fossil fuel for vehicles and domestic heating and to the degradation of aquatic ecosystems through the discharge of heated cooling water. Oil exploitation was also associated with the degradation of the environment in its vicinity during drilling or as a result of marine shipping. The expansion of transportation systems due to population increases and economic activities (such as tourism) posed threats to the natural and built environment mainly through atmospheric pollution, noise and occupation of land. Maritime transport in the Mediterranean Sea further increased the risk of accidental marine pollution.



Tourism and recreation, although offering significant economic benefits, were not without social and environmental costs. Waste and water resource management were among the most important environmental issues associated with tourism development in the Mediterranean Basin.



Agriculture created pressures on the environment either in the form of an increased demand for land and water resources, or through the pollution of coastal ecosystems, the creation of eutrophication phenomena and soil erosion. Fisheries contributed to the depletion of fish stock in the Mediterranean Sea, while mariculture often led to eutrophication phenomena through the flushing of excess food material. Finally, in forestry, deforestation activities as well as forest fires had adverse effects resulting in soil erosion and the degradation of ecosystems.

The marine environment, including the oceans and all seas and adjacent coastal areas, forms an integrated whole that is an essential component of the global life-support system and a positive asset that presents opportunities for sustainable development. In this respect, Agenda 21 urged coastal states to commit

themselves to the integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction by: (a) providing for an integrated policy and decision-making process to promote compatibility and a balance of uses; (b) identifying existing and projected uses of coastal areas and their interactions; (c) applying preventive and precautionary approaches in project planning and implementation; (d) promoting the development and application of methods that reflect changes in value resulting from uses of coastal and marine areas; and (e) providing access, as far as possible, for concerned individuals, groups and organisations to relevant information and opportunities for consultation and participation in planning and decision-making.

1.2. The Present State of the Mediterranean

1.2.1. Main Pressures and Trends

Urbanisation

In 1997, the population of the Mediterranean coastal states was approximately 450 million. The Blue Plan Regional Activity Centre (BP/RAC) forecasts that this total will exceed 520 million in the year 2025. Overall, the urbanisation rate was 64% in 2000, and it is forecast to grow to 72% in 2025. However, the urbanisation rate in the North will increase only slightly, from 67% to 69%, while in the South it will accelerate more steeply, from 62% to 74%.

Populations are increasingly occupying the coastal zone (today more than 30% of the total

length of the coast in the region), exacerbating “littoralisation”. Given that only 40% of the total length of the Mediterranean coasts can be deemed “useful” for human activities and settlements, increasing littoralisation becomes a major regional concern (**Figure 1**).

While in the distant past, the Mediterranean was witness to brief periods of rapid intensive urban growth, there was a balance between urban growth and rural development. The major urban centres developed around coastal settlements and ports; their development was typified by spatial concentration. In recent decades, however, with rising incomes, the modernisation of transportation infrastructures (mainly roads) and tourism, the region is

experiencing an escalating sprawl of urbanisation along the coastline, which continues to attract further populations and economic activities from the hinterland. It appears that Mediterranean urbanisation has entered a phase of rapid expansion, reaching a state of “hyper-development”. This phase is typified by high population densities, environmental degradation and a decline in the quality of life, with activities being concentrated in a few large urban centres and in coastal areas. This trend generates imbalances in terms of economic opportunities and growth at the national and regional levels, reflected in widespread migratory phenomena, as well as in a further imbalance between the coastal urban centres and their adjacent inland areas.

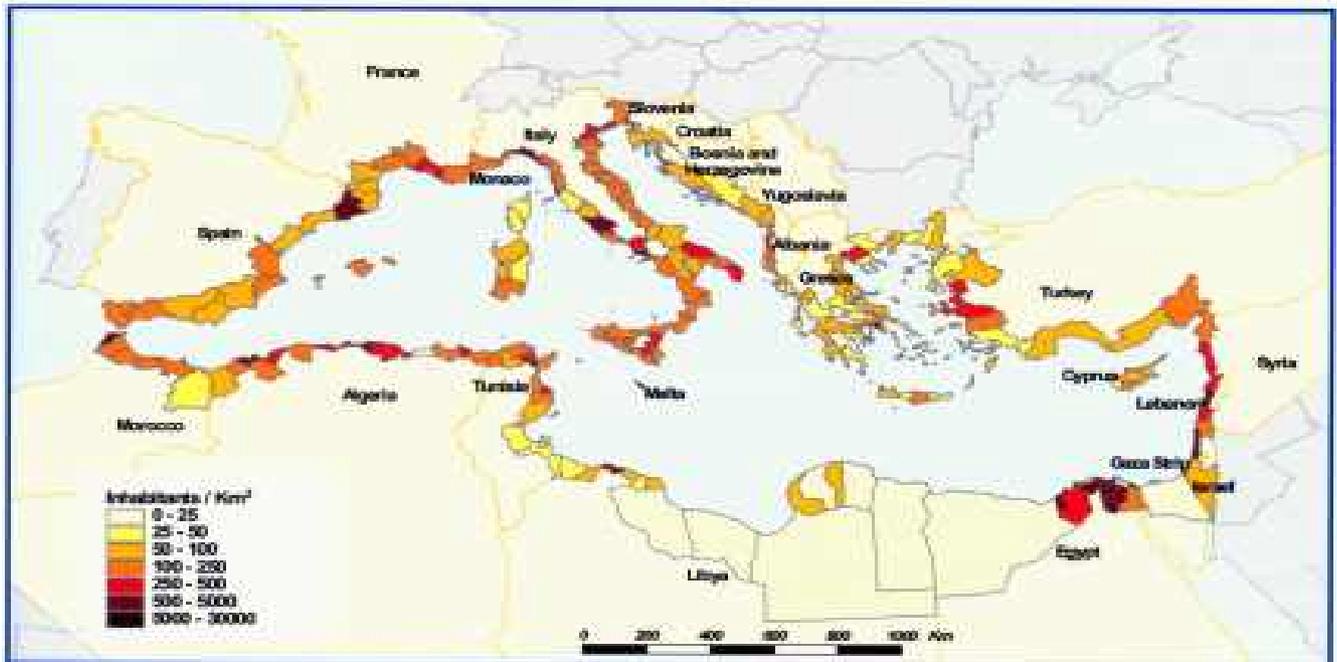


Figure 1. Population density in coastal Mediterranean regions (Source: Blue Plan Databases)

Coastal urbanisation has significant consequences:

- *Spatial polarisation*: Vast coastal spaces previously open or used for agriculture, are inevitably reduced, generating land-use antagonisms between various economic activities. This leads to spatial imbalances in development between prosperous coastal areas, which are heavily populated and characterised by high intensities of land-use and consumption, and weaker inland areas, with a lower density of inhabitants and less dynamic economies.
- *Rising demand for key resources and conflicts of use*: Domestic water consumption is increasing, especially due to steady urbanisation growth, reaching maximal rates in Southern and Eastern countries. Moreover, population growth in areas suffering from water scarcity, can exacerbate the crisis.
- *Degradation of resources*: The geographic distribution of water consumption is similar to

that of the territorial concentration of its waste, resulting in problems of groundwater pollution and run-offs of wastewater into the sea. In urban areas, these impacts have been accentuated due to the impermeability of substantial areas, preventing rainwater from permeating the soil and filling natural subterranean water systems, as well as by speeding run-offs into rivers (with occasional resultant flooding) and into the sea.

- *Pollution threats to the sea*: Sewage run-off does not necessarily impact negatively on a sea such as the Mediterranean, which is too poor in nutrients to benefit sea life. Problem arises when excessive concentrations of it are found in a small area, as is the case around the major Mediterranean urban centres of which 48% are estimated to lack sewage treatment facilities.
- *Pollution risks to urban areas*: Urbanisation is also linked to ever increasing levels of air and noise pollution. The principal effects of sulphur oxides, lead, nitrogen oxides, carbon dioxide and monoxide, volatile organics, molecular mercury, methane, etc., on the atmosphere are those associated with the so-called “greenhouse” effect and those producing smog, more specifically, in certain places under particular atmospheric conditions, especially those prevailing over large urban/industrial areas.

Tourism

The Mediterranean is the world's prime tourist destination, with an estimated 170 million arrivals in the mid-1990s. Of these, about 24% originate in Mediterranean countries (according to 1993 statistics). These concentration rates



are maximised on the coast; they are heavily seasonal and dominant in the North-western Mediterranean, although this increase is now more rapid in other sub-regions (**Figure 2**).

The development of tourist activities in most of the Mediterranean countries is a key element in coastal urbanisation (new settings or “re-conversion” sites), simultaneously triggering processes of local economic growth and constituting a heavy burden on local authorities who are faced with the difficult challenges of managing every conceivable aspect of this industry (facilities, services, municipal sewage and waste treatment, seasonal imbalances, etc.). In this respect, mass tourism exacerbates

many of the pre-existing problems in urban areas, such as the occupation of land surfaces, water resource consumption, as well as pollution and waste, leading to habitat loss for many wildlife species occupying the Mediterranean Sea and land, and the abandonment of traditional activities, such as fishing and agriculture, and sometimes the deterioration of cultural values. This particular development has come to represent a real danger to most popular coastal areas, as well as to most of the islands in which the vegetation has been gradually transformed from either a natural or productive element (agricultural landscape) to merely an aesthetic element with a predominantly decorative function.

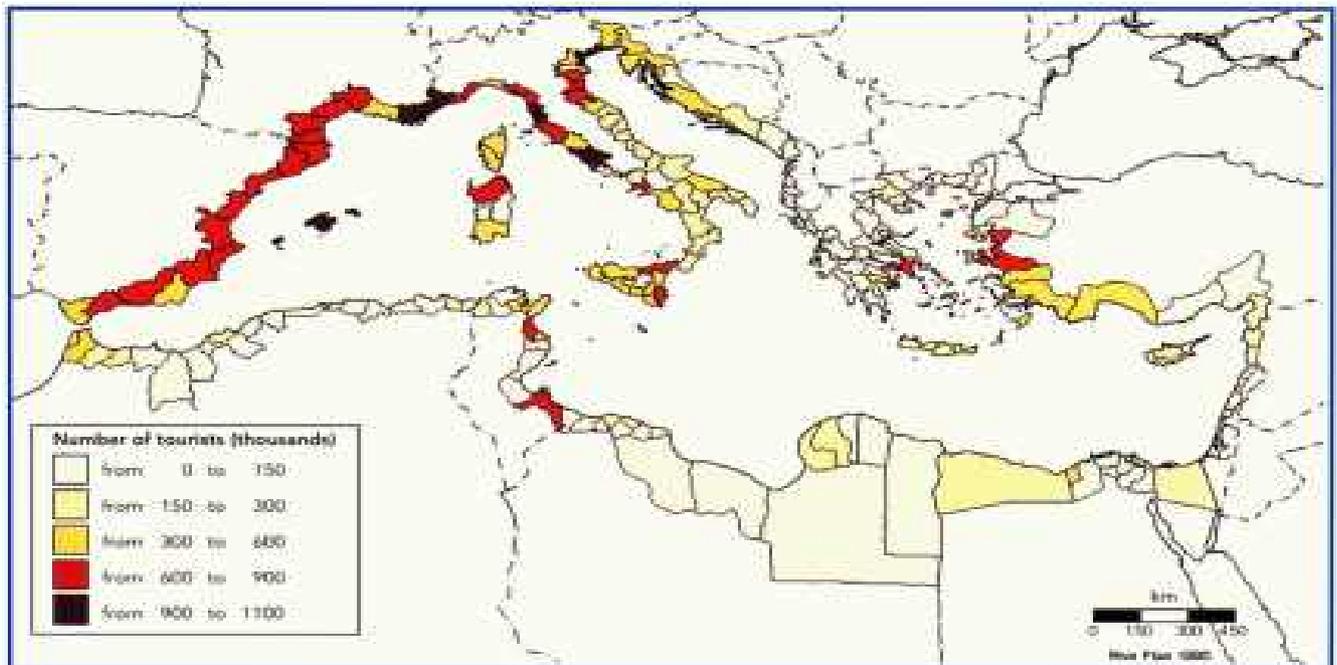


Figure 2. Estimation of tourism in the Mediterranean during the peak period (Source: UNEP/MAP)

1.2.2. The State of the Environment

The natural environment: a diminishing asset

In general, the state of Mediterranean waters is considered to be good. However, certain contaminants, such as lead and cadmium, have been found in significant concentrations within the deep canyons bordering the continental shelf, suggesting possible **risks of long-term pollutant accumulation**.

The marine pollution problems in the two Basins of the Mediterranean (East and West) are, to a large extent, independent. This is because there are many differences between them (such as meteorology, geomorphology, water masses circulation, ecology, etc.) and because the environmental characteristics of

the surface water in the Western Basin do not significantly influence those of the surface water in the Eastern Basin, and *vice versa*.

In coastal areas, the presence of **pollution “hot spots”**, as identified by the Mediterranean states and the Mediterranean Action Plan (MAP), typically located in semi-enclosed gulfs and bays near key harbours, big cities and industrial areas, probably constitutes the major problem of the Mediterranean Sea. On the basis of the Strategic Action Programme to Address Pollution from Land-based Activities in the Mediterranean Region (SAP MED), the main pollutants or impacts of concern are: municipal sewage (including micro-organisms), urban solid waste, and air pollution; and Persistent Organic Pollutants (POPs), including

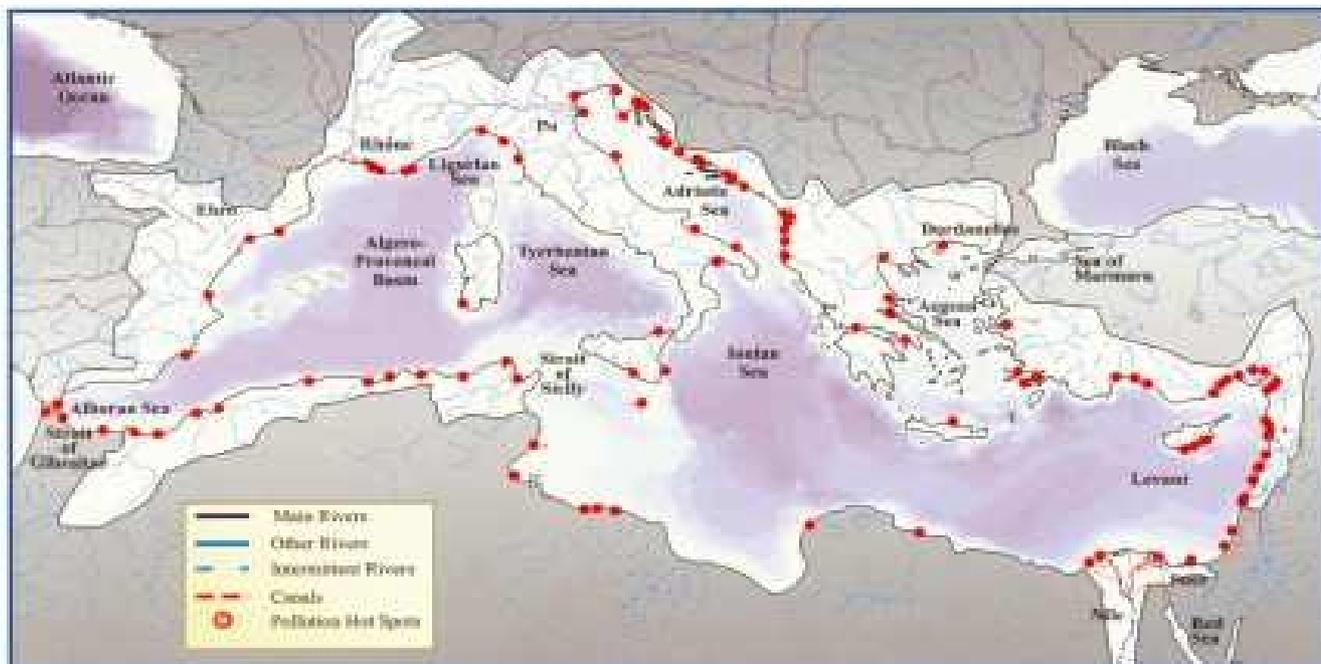


Figure 3. The distribution of the identified Mediterranean pollution hot spots (Source: UNEP/WHO)

pesticides, PCBs and PAHs, heavy metals, oils, radioactive substances, nutrients and suspended matter, in addition to physical alterations and habitat destruction. Overall, 101 priority hot spots have been identified within 19 Mediterranean countries (**Figure 3**). Although these areas do not represent all the polluted sites within the Mediterranean Basin, they nevertheless constitute the bulk of the pollution loads for most of the domestic or industrial contaminants.

Despite the fact that **coastal erosion** has been considered a severe problem for many Mediterranean countries, it has been poorly evaluated. For example, it is estimated that 25% of the Italian Adriatic coast and 7.4% of the Aegean Sea show trends of erosion, while

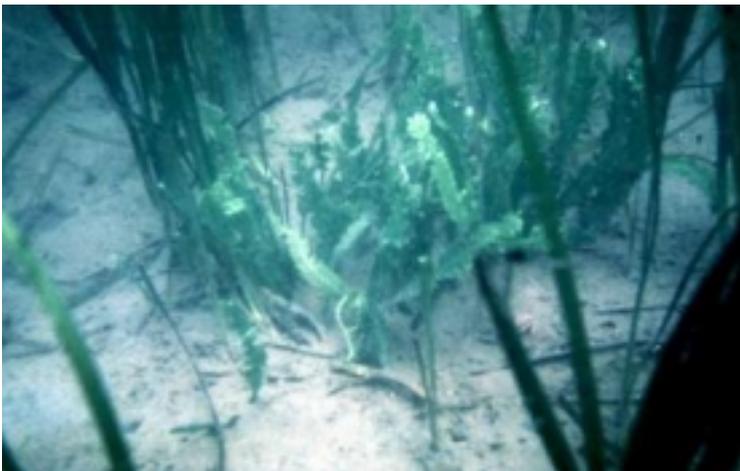
only 50% of the total coastline of the European Mediterranean area is characterised by stability (**Table 1**).

Land occupation and sea pollution negatively affect the distribution, diversity and survival of flora and fauna, and the natural ecosystems in general. In heavily disturbed or polluted areas, **benthic communities disappear**, to a great extent. When organic enrichment exceeds the potential for re-mineralisation by benthic organisms, anoxic zones are formed and the seabed is covered by bacterial mats. Although this type of ecosystem change may be redeemable, there are damaging consequences in cases in which the affected seabed is a critical habitat and nursery, such as the seagrass beds.

Maritime regions in the Mediterranean Sea	No information	Stability	Erosion	Sedimentation	Not applicable	Total (Km)
Balearic islands	0.5	68.8	19.6	2.4	8.7	2861
Gulf of Lion	4.1	46.0	14.4	7.8	27.8	1366
Sardinia	16.0	57.0	18.4	3.6	5.0	5521
Adriatic Sea	3.9	51.7	25.6	7.6	11.1	970
Ionian Sea	19.7	52.3	22.5	1.2	4.3	3890
Aegean Sea	37.5	49.5	7.4	2.9	2.6	3408

Table 1. Evolutionary trends of some coasts of the European part of the Mediterranean Sea for both rocky coasts and beaches as % of coasts

(Source: EAA)



One of the major manifestations of environmental degradation is **habitat loss** for certain endangered species, imposed by antagonistic human activities. As an example, 1,500 km of coastline in the Euro-Mediterranean area is considered to be artificial, with harbours and ports constituting the major part (1,250 km). Wetland loss (the total area fell from three million hectares in the Roman era to 200,000 hectares by 1994, i.e. a reduction of 93%) and degradation have also been identified as a serious threat to many aquatic species, especially water bird species nesting along the Mediterranean coastline.

The introduction of new organisms, in the form of **exotic species** or highly cultivated strains may be threatening to a given ecosystem. Generally speaking, it is estimated that about 80% of species introduced into the Mediterranean (naturally, through the Suez Canal or the Straits of Gibraltar, or accidentally from ship ballast, and other routes) do not affect indigenous communities. However, certain

species impact negatively, through changes to inter-species competition and the food chain, and/or changes in the natural environment itself via the influence of certain organisms and the possible genetic degradation of indigenous stock.

As in other parts of the world, potential impacts from **climate change** in the Mediterranean include drought, floods, changes in soil erosion and desertification, storms, coastal erosion, changes in seawater temperature and salinity, sea level rise and biodiversity reduction. Such changes occur in a way that is likely to exacerbate the problems that already exist in various Mediterranean countries.

In the Mediterranean, while the fluctuations of sea level throughout history seem to have been largely dominated by the effects of local tectonics, climate change could be an additional factor particularly affecting the key natural wetlands and coastal lowlands along different stretches of the coast. From a scenario created recently for the Mediterranean, the rise in sea level by the year 2100 is estimated to be within a range of 20 to 86 cm. The study of “high-risk” areas, as well as of other Mediterranean tracts, shows that human-induced effects greatly increase the problems associated with **sea level rise**, mainly through:

- a reduction of river sediment supply;
- the destruction of natural shoreline defences, such as sand dunes and coastal ridges, for coastal urban development connected to commercial or tourist activities; and
- the over-pumping of groundwater that may enhance subsidence due to the lowering of piezometric surfaces of confined aquifers and to compaction phenomena.

Culture and heritage: a rich diversity is at risk

The Mediterranean cultural heritage (monuments, historical settlements, archaeological sites, languages, literature, traditions, customs, etc.) constitutes a valuable regional resource. The stratification of the many distinctive and intricate histories represents a lived everyday experience leading to a broad cultural diversity at the local level in the present. As a consequence, coastal towns and small islands form an extraordinary and complex web of cultural units, endowed with their own particular histories, religions, traditions, land-use and socio-cultural patterns, as well as their own perception of the world and human welfare. As in other parts of the world, globalisation (i.e. the standardisation of economic systems, urban settlements and social behaviour) threatens cultural identities represented by local communities.

In parallel, however, as has been historically the case, the economic gulf between the European Union countries and other countries around the Mediterranean Basin (especially between the Southern and the North-western regions) has prompted intense migrations that enrich the cultural diversity of urban communities, especially in the Mediterranean European countries.

Among the most visible monuments of cultural heritage are the manmade landscapes, which were traditionally structured around the three main Mediterranean components, encompassing the sea, the coast, and the mountains. Regretfully, in the past fifty years, the intensive population and settlement growth within the Mediterranean has accelerated,

reaching previously inconceivable levels. This trend shows no sign of abating, especially on the Mediterranean's Southern shores. In general terms, the most threatened landscape resources are precisely those that constitute the most valuable tourism attractions.

1.3. Improvements in Coastal Areas and the Contribution of the Mediterranean Action Plan (MAP)

In the Mediterranean environment, several issues persist due to increasing population growth, urbanisation, and uncontrolled economic development such as tourism. However, some progress has been made, mainly as a result of local, national and regional initiatives, such as the Mediterranean Action Plan (MAP), specifically:

- Several measures have been taken for the **forests and woodlands'** protection, such as





the establishment of relevant legislation, the establishment of national inventories and regular monitoring against forest fires.

- **Soil erosion**, especially in areas where torrential rain and steep geomorphology exist, represents a real threat for Southern countries. Nevertheless, several national plans for soil conservation exist while programmes for mapping and monitoring soil erosion are underway. The UN Convention on Combating Desertification has either been ratified or approved, while national legislation exists.
- The over-exploitation of **coastal aquifers** has already led, in many cases, to irreversible saltwater seepage while conflicts of use and interests between upstream and

downstream towns and agriculture are largely intensifying due to water shortages and the increased pollution of **mainland waters**. To confront this problem, laws for rational water management and pollution prevention have been established, while water treatment units are being constructed and master plans developed.

- Ecosystems essential to maintaining **biodiversity**, such as wetlands, have decreased in surface area due to agriculture and urban development. Nevertheless, the sum of protected coastal areas has increased six fold during the last 25 years. National biodiversity action plans are being developed as are protection measures and monitoring and management activities geared to assisting threatened species.
- Actions taken for the protection of the **marine environment** include the establishment of appropriate legislation for pollution abatement, the construction of infrastructures, the implementation of prevention measures and continuous monitoring and regulation.
- Trends reveal that solid domestic and industrial **waste production** is rising, while contamination, and atmospheric and visual pollution are the result of inappropriate waste management practices. Appropriate legislation, as well as infrastructure development and the elaboration of action plans, constitute constructive initiatives.
- Regarding **air pollution**, greenhouse gas emissions and the consumption of ozone-depleting substances show decreasing trends. Legislative measures for air pollution abatement are in place, and monitoring

networks are being launched. Other initiatives include incentives for clean technology and energy-saving plans, as well as the promotion of renewable energy sources.

MAP was the first Regional Seas programme of the United Nations Environment Programme (UNEP) and was established within the framework of the Barcelona Convention (1975). Since then, MAP's main components have dealt with:

- monitoring pollution in the Mediterranean;
- assessing the future of the Mediterranean Basin;
- preserving the Mediterranean's natural and cultural heritage;
- promoting the integrated management of Mediterranean coastal and marine regions; and
- promoting sustainable development in the Mediterranean Basin.

MAP's operation, co-ordinated by the Co-ordinating Unit for MAP (MEDU), in addition to MEDPOL (a programme combating regional pollution), is based on the activities of six Regional Activity Centres (RACs), namely:

- Priority Actions Programme (PAP/RAC): promoting the balanced management of the environment through specific, progressive and inter-sectorial planning measures, supporting the Integrated Management of Coastal and Marine Areas (ICAM).
- Blue Plan (BP/RAC): developing tools and carrying out prospective studies at the regional (the Mediterranean basin), national and local level, in order to identify potential development impacts on the environment.

With this respect, it develops a Mediterranean observatory for environment and development.

- Specially Protected Areas (SPA/RAC): assisting countries in identifying protection sites, elaborating national biodiversity conservation strategies, action plans for endangered species, etc.
- Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC): organising training activities, elaborating national contingency plans and facilitating regional co-operation in cases of accidental pollution.
- Environment Remote Sensing (ERS/RAC): observing the marine environment through remote sensing and multidisciplinary co-operation.
- Cleaner Production (CP/RAC): popularising the concept of cleaner production in industry in order to encourage the adoption of eco-technology, the reduction of waste at source, etc.

The activities undertaken by MAP's operating structures are largely related to the provisions of Agenda MED 21 and to the priority areas selected under MAP Phase II (adopted in 1995). Many of these activities concern the coastal areas, and their implementation requires the close co-operation and collaboration of all the above-mentioned MAP components. The 12 priorities for action selected in 1995 to run until 2005 are:

- the integration of the environment and development;
- the integrated management of natural resources;

- waste management;
- agriculture;
- energy and industry;
- transport;
- tourism;
- urban development and the environment;
- information;
- assessing and preventing marine pollution;
and
- conserving nature, wildlife and historic and
cultural sites.

A major shift in the regional efforts towards better coastal management occurred with the establishment of the Mediterranean Commission on Sustainable Development (MCSD). The MCSD is promoting a new model for environmental management in the region. In addition to representatives from regional governments, MCSD members hail from NGOs, professional associations and the private sector, all of them major stakeholders in regional coastal sustainable development. The Commission held its first meeting in Rabat, in December 1996. A decision was made to analyse a number of priority issues that were hindering sustainable development in the region. Prominent among them were the sustainable management of coastal zones, the development of tourism, and sustainable urban management. The MCSD proposed a number of recommendations that were adopted by the Contracting Parties to the Barcelona Convention at the subsequent biennial meetings.



2. THE FOLLOW-UP TO RIO

2.1. The Main Shifts in Coastal Zone Management Efforts After Rio

At the global level, the UN Conference on Environment and Development, held in Rio de Janeiro in 1992, acknowledged that coastal zones are areas of particular concern as they host diverse, complex and productive habitats and ecosystems useful for human settlements, development and local subsistence. Due to growing pressures from the increasing concentration of population and activities, new integrated approaches to coastal zone management must be put forward at the national, regional and global levels.

2.2. Promoting New Approaches to Coastal Zone Management

In the wake of the Rio Conference, a number of regional events have sought to identify and bolster Integrated Coastal Area Management (ICAM) as a major tool in the promotion of sustainable development in Mediterranean coastal regions. Mediterranean states have met on a number of occasions to express their permanent interest in ICAM, namely:

1. A **Conference on Sustainable Development in the Mediterranean**, held in Tunis, in 1994, approved several preparatory activities for the implementation of the Rio documents in the region. Adopted were the Declaration on Sustainable Development in the Mediterranean, the Agenda MED 21 as a draft document, and the Resolution on the Establishment of the Mediterranean Commission on Sustainable Development (MCSD).
2. The **Ninth Ordinary Meeting of the Contracting Parties**, held in Barcelona, in 1995, when the MAP post-Rio activities were finalised. Among the key achievements of this meeting were the adoption of the amendments to the Barcelona Convention that are of crucial importance to the implementation of ICAM and sustainable development principles within MAP. Also adopted were: the Action Plan for the Protection of the Marine Environment and Sustainable Development of the Mediterranean (MAP Phase II Action Plan); a document on Priority Fields of Action (1996-2005); and the Barcelona Resolution on the Environment and Sustainable Development in the Mediterranean Basin. The MCSD was officially established.
3. The **Euro-Mediterranean Conference**, held in Barcelona, in 1995, establishing the Euro-Mediterranean Partnership. The environment was recognised as one of the domains demanding an intensified co-operative effort and as a crucial dimension for the achievement of sustainable development in the Mediterranean. The general objectives of the environment programme under the framework of the Euro-Mediterranean

Partnership with special interest in coastal zones are: (a) to assist in altering the trend of environmental degradation; (b) to protect the Mediterranean environment and contribute to sustainable development; (c) to integrate environmental concerns into sectorial policies; and (d) to strengthen its coherence and secure synergies with existing multilateral programmes and legal bodies. In this context, the **Ministerial Euro-Mediterranean Conference**, which was held in Helsinki, in 1997, adopted the Short and Medium Term Priority Environmental Action Programme (SMAP), with Integrated Coastal Area Management (ICAM) as a priority field of action.

4. A **Workshop on Policies for Sustainable Development of Coastal Areas in the Mediterranean** was held in Santorini, in 1996. The conclusions of the workshop were, in summary, that: (a) sustainable development policies for the Mediterranean should be multidimensional and geared to a

long-term view, structured and proactive, targeted to critical factors, based on the conservation of biodiversity, resources and habitats and mobilise a spectrum of actors in the spirit of shared responsibility; (b) a comprehensive approach should be instigated to plan and manage the Mediterranean coasts in an integrated way; (c) social acceptance is considered essential to the implementation of policies and measures for coastal zone management; (d) coastal zones need to be declared free of major industrial and energy installations; and (e) coastal zones must be a major thematic area for Euro – Mediterranean co-operation.

5. The **Tenth Ordinary Meeting of the Contracting Parties to the Barcelona Convention** was held in Tunis, in 1997. Under the framework of the meeting the following draft recommendations were adopted: (a) to improve institutional mechanisms for the integrated management of coastal areas; (b) to establish or strengthen and enforce legislative regulatory instruments; (c) to ensure access to information in order to raise awareness and training for the largest possible number of actors; (d) to establish appropriate incentive systems for the integrated management of coastal areas; (e) to develop, with the support of relevant international organisations, and of the EU, practical pilot projects in the field of coastal area management and to disseminate the results; and (f) to increase opportunities and improve the effectiveness of active public participation.



2.3. Methodologies for Coastal Zone Management: Integrated Coastal Area Management (ICAM) and Integrated Coastal Area and River Basin Management (ICARM)

2.3.1. Integrated Coastal Area Management (ICAM)

ICAM is a continuous, proactive and adaptive process of resource management for environmentally sustainable development in coastal areas. The overall objective of ICAM is to provide for the best long-term and sustainable use of coastal resources and for the lasting maintenance of the most beneficial coastal environment. Resource management and environmental conservation, which provide the motivation for ICAM, are not incompatible with economic growth. In fact, enhanced long-term economic development can and must be the overall driving force of ICAM. Specifically, ICAM aims to:

- strengthen sectorial co-operation, i.e. through training, legislation, etc;
- conserve and protect the productivity and biodiversity of coastal ecosystems through the prevention of destruction, pollution and overexploitation; and
- promote rational development and the sustainable utilisation of coastal resources.

Fundamental to ICAM is a clear understanding of the relationships between coastal resources, their uses and the impacts of development on the economy, society and the environment. Since coastal resources can be used

simultaneously by various economic sectors and social actors, the clarification and comprehension of all their uses and relationships is essential. Also, for ICAM to succeed, a broad context of the involvement of major actors and interest groups is essential.

The participatory process must focus on facilitating horizontal and vertical dialogue, agreements, and compromises between all parties and actors involved in the harnessing and exploitation of coastal resources, in a comprehensive and integrated manner.

ICAM as a process may be organised in three stages:

1. *Initiation*, consisting of an analysis of key factors influencing decisions to pursue ICAM, such as previous or new decisions, external influences or reactions from the community, etc.
2. *Preparation of the Integrated Coastal Master Plan*, including the identification of sectorial problems, the analysis of present and future uses of coastal resources and their interactions, projections of existing trends and forecasts expected to affect the natural system, the definition of goals and strategies and the preparation of integrated plans and policies.
3. *Implementation of the Integrated Coastal Master Plan*, including the monitoring and evaluation of the implementation. During this stage, the long-term management strategy is transformed into specific actions and projects which are supplemented by monitoring and continuous information feedback.

This methodology has been tested and improved through the implementation of a number of regional projects, in particular the Coastal Area Management Programme (CAMP) projects in more than 10 Mediterranean countries (**Figure 4**). The methodology offered by MAP and, in particular, its Priority Actions Programme Regional Activity Centre (PAP/RAC), provides a general framework, which has been adapted to the conditions prevailing in each of the countries where these projects were implemented.

2.3.2. Integrated Coastal Area and River Basin Management (ICARM)

Both river basin and coastal issues require a multi-sectorial approach although the emphasis may shift into multi-sectorial co-ordination with some elements of rural land- use regulation (river basin management) or into physical planning and resource management with a strong emphasis on land-use regulation and physical interventions (coastal zone management).



As rivers and coasts are physical and ecological entities, changing patterns of land and resource use in upstream areas will have an impact on downstream areas. Conflicting demands on natural resources and land uses have created the need for a comprehensive approach, involving multiple objectives and the corresponding need to account for a wider scale of interest both according to area and over time.

ICARM requires the adoption of goals, objectives and policies and the establishment of governance mechanisms which recognise the interrelationships between the two systems, with a view to environmental protection and socio-economic development.

The goals of ICARM fall within the framework of sustainable development. Within this framework, environmental conservation is of equal importance to economic efficiency and social equity, all of which are sought within the parameters of a long-term perspective based on intergenerational equity. The basic principles of ICARM in the context of sustainable development must:

- respect the integrity of the river basin or coastal ecosystem and accept limits on the use of resources;
- ensure the strategic importance of renewable resources for socio-economic development;
- allow for the multiple use of resources integrating complementary activities and regulating conflicting ones;
- ensure multi-sectorial and multi-level integration in decision-making, linking broad-scale management to local-level intervention;

- allow for the participation of all actors, particularly local populations, in the planning process, to secure effective management.

As issues often transcend administrative boundaries, ICARM must function at different levels:

- At the national level, policy issues related both to the formulation and the implementation of ICARM must be defined. A strategy needs to be elaborated providing the necessary guidelines for local and regional initiatives. An agency, which can be responsible for coastal and river basin management at the national level, must be identified since environmental and conservation standards will be set at this level. A committee that will work on the sectorial concerns, allowing the participation of all interested ministries, may be formed as well.
- At the sub-national level, more detailed plans may be developed on the basis of the national guidelines for ICARM. The co-ordination of local plans for ICARM will be pursued alongside the resolution of conflicts with national goals.
- Detailed plans are developed at the local level.

The expected outcome of an integrated management approach would be the optimisation of policy interventions in various areas and over time, to reduce potential conflicts, bridge potential gaps and streamline potential policy overlaps. This new integrated approach is presented in detail in the ICARM guidelines, published by PAP/RAC in 1999. The principles of ICARM have already been applied

during 2000, in the Cetina river watershed in Croatia, in co-operation with UNEP. An environmental and socio-economic profile was prepared by a team of national and international experts.



2.4. Tools for Integrated Coastal Area Management

2.4.1. Tools and Techniques

A variety of tools and techniques can be used in the context of Integrated Coastal Area Management (ICAM), depending on the geographic and institutional setting. In most cases, these can include traditional public policy instruments which can be procedural, regulatory (planning, licensing, permits, etc.), economic (taxes, incentives, etc.) or physical (infrastructure, etc.). These tend to rely on the public sector although there is a growing concern that such management is not always

adequate or efficient enough to yield results. In the spirit of shared responsibility in development and environmental management, traditional tools can be complemented with more modern ones such as policy guidelines, voluntary agreements, etc.

Modern policy making draws special attention to certain key tools, such as:

- Information management, including tools like Geographical Information Systems (GIS) and monitoring systems.
- Evaluation and assessment, including Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA), risk assessment, economic evaluation, prospective studies, Carrying Capacity Assessment (CCA) for tourism, studies of impacts of expected climatic change, etc. Within the category of economic tools, techniques, such as cost/ benefit analysis and least cost analysis, may be included.
- Instruments for implementation, including regulatory and economic bargaining, negotiations and voluntary agreements, conflict resolution techniques, etc. Within the category of regulatory instruments, one may identify the following: land-use planning, zoning and building regulations, licensing, etc. Within the category of economic instruments, one may identify the following: charges, development taxes, subsidies, resources pricing, etc.

Painstaking efforts have been made to develop and implement these tools and techniques in the region. Special attention has been paid to adapting tools and techniques, some of them

too sophisticated and costly, and to simplify them in order to make them more acceptable to the majority of Mediterranean states, particularly developing countries. The most obvious examples of this approach were the development and practical application of EIA procedure, as well as CCA. The latter, thanks to PAP/RAC's pioneering role, is gradually becoming a major instrument helping guide actions towards the sustainable growth of tourism in a number of important coastal tourist destinations in the region (Malta, Rhodes, Rimini).

2.4.2. Publications and Guidelines

A plethora of publications, such as methodological documents and guidelines have been produced in order to help national and local stakeholders promote sustainable development and implement projects in this manner. Among the most important are:

1. UNEP: Guidelines for the Integrated Management of Coastal and Marine Areas – With Special Reference to the Mediterranean Basin. UNEP Regional Seas Reports and Studies No. 161. Split, PAP/RAC (MAP-UNEP), 1995.
2. UNEP: State of the Marine and Coastal Environment in the Mediterranean Region. MAP Technical Reports Series No. 100. Athens, MAP-UNEP, 1996.
3. METAP-MAP/PAP: Assessment of Integrated Coastal Area Management Initiatives in the Mediterranean: Experiences from METAP and MAP (1988-1996). Split, World Bank and PAP/RAC, 1998.

4. UNEP/MAP/PAP: Formulation and Implementation of CAMP Projects: Operational Manual. Athens-Split, MAP, 1999.
5. UNEP/MAP/PAP: Conceptual Framework and Planning Guidelines for Integrated Coastal Area and River Basin Management. Split, PAP/RAC, 1999.
6. UNEP/MAP/PAP: White Paper on Coastal Zone Management in the Mediterranean. Split, PAP/RAC, 2001.
7. UNEP/MAP/PAP: Good Practice Guidelines for Integrated Coastal Area Management in the Mediterranean. Split, PAP/RAC, 2001.

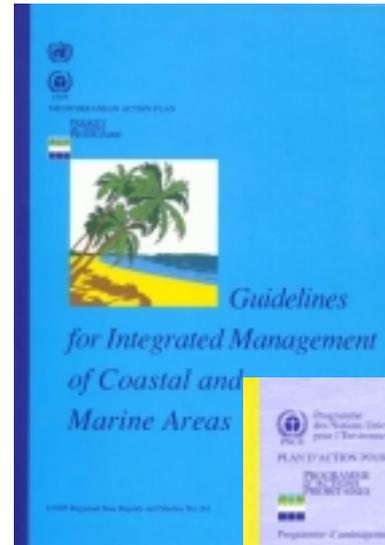
2.5. Practical Pilot Projects

2.5.1. Coastal Area Management Programmes: Goals Achieved, Results and Lessons Learned

Coastal Area Management Programmes (CAMPs) have represented MAP's own special contribution to the integrated management of coastal areas. CAMPs have been oriented towards the successful completion of practical coastal management projects in selected Mediterranean countries.

The key CAMP objectives are the following:

- To develop strategies and procedures for achieving sustainable development, environmental protection and the rational utilisation of coastal and marine resources as these constitute integral parts of the sustainable development process.
- To identify, adapt and test methodologies, tools and practices of sustainable coastal management.



- To contribute towards the upgrading of the national/local institutional and human capacities involved.
- To secure its wider application at the national, international and regional levels and create the necessary preconditions for follow-up activities.

The CAMPs' long-term agenda includes:

- The resolution of priority environment-development problems at the local level.
- The formulation and implementation of relevant national policies and strategies through the submission of methodologies and procedures at the national level.

- The dissemination and exchange of experience contributing to the formulation and implementation of policies and strategies at the regional level.
- The consolidation of co-operation and the sharing of experiences, methodologies, procedures and results with other world regions.

Between 1989 and 1998, two CAMP cycles were completed, with projects implemented in Albania (the Albanian Coast), Croatia (Kastela Bay), Egypt (Fuka-Matrouh), Greece (the Island of Rhodes), Syria (the Syrian Coast), Tunisia (the City of Sfax) and Turkey (Izmir Bay). The CAMP project in Israel was recently completed, while the project in Malta is nearing completion.



Figure 4. Location of MAP CAMPs

Throughout this period, the Programme has been adapted to reflect sustainable development in Integrated Coastal Area Management (ICAM). The Programme's third cycle includes the preparation of local projects in Algeria, Cyprus, Lebanon, Morocco and Slovenia. In 1995, the revision of the Barcelona Convention, and the adoption of MAP's Phase II, including the Priority Fields of Action for the period 1996-2005, strongly supported the continuation of the Programme. In order to qualify for a CAMP, all selected sites had to be facing specific environmental problems and the need for the short and long-term solution had to be expressed by national and local government. Additionally, selected sites had to be considered as typical of the Mediterranean coast in order that experience gained and the lessons learned would be easily transferable.

Generally, CAMPs have managed to fulfil their specific objectives relatively well. They have also helped promote MAP's overall objectives, which include the following:

- promoting co-operation between national authorities, institutions and experts;
- transferring international knowledge and experience;
- supporting expertise, training and providing minimum equipment, especially for Southern Mediterranean countries;
- co-operating with international funding institutions.

Although the majority of CAMP initiatives have efficiently integrated environmental concerns into development issues, they have not always adequately involved all the stakeholders, particularly NGOs and the general public.

However, the CAMPs' most serious limitation is the lack of financial resources for follow-up activities. More positively, CAMP initiatives have increased the capacity of local experts as a result of training and have sensitised decision makers to coastal management issues.

2.5.2. CAMP Projects: Achievements and Lessons Learned

Presented below are some of the CAMP projects that were concluded in recent years. To date, eight CAMPs have been concluded, three are underway, while three are in the preparation phase.



City of Sfax, Tunisia

The CAMP in Sfax dealt with the area in the vicinity of the major industrial and commercial city, Sfax, in the southern part of Tunisia. It elaborated actions to be implemented in the drive for a radical change in the prevailing concept of development and to secure the

future sustainable development of the area and an improvement in the quality of the life of the affected population. Priority issues concerned the:

- implementation of the programme for industrial and urban pollution abatement and the rehabilitation of degraded resources and areas;
- establishment of protected areas, of a National Park, and a number of recreational and tourist facilities;
- integrated management of aquifer protection and exploitation; supply and distribution of water resources; liquid and solid waste management;
- integrated management and sustainable development of the area, with particular reference to its southern part.

On the basis of CAMP results, the Government of Tunisia has intensified its efforts to implement some of the project's proposals. The CAMP's findings will also be utilised in the

implementation of a GEF-financed project for the protection of the marine and coastal resources in the Gulf of Gabes.

The Bay of Izmir, Turkey

The geographic scope of the intervention was the area of the Metropolitan Municipality of Izmir. The programme's activities were divided into two major phases: the preliminary, pilot phase, and the actual CAMP phase. During the initial phase, a number of urgent problems were solved, a better understanding of the natural environment was gained, and an overall basis for the actual CAMP was established. The programme's major output was "The Integrated Management Study for the Area of Izmir" proposing the following:

- urgent measures for the alleviation of acute problems regarding unsustainable patterns of resource use;
- medium-term measures enabling the preparation of the Integrated Coastal Master Plan;
- a methodological framework for the preparation of the Master Plan.

The final assessment of the programme concluded that major positive changes could be observed in the management and the actual development of the Izmir Metropolitan Area, ones that were partially attributable to the CAMP initiative. The Master Plan was developed as a land-use plan rather than a management plan, which was the objective of the CAMP. Other limitations included the low level of public participation and a vague timeframe for the completion of the Master Plan. This led to a protracted formulation period



and weak institutional and political support due to a change in local administration.

The Island of Rhodes, Greece

The geographic scope of this CAMP initiative was the entire island of Rhodes. It envisaged the preparation of a number of sectorial activities (such as liquid waste management, pollution monitoring, an overall Master Plan for water resources, an investigation into the implications of expected climatic changes, a programme of environmentally-sound energy planning, the protection of historic sites, a GIS training programme, the application of EIA, a development/environment scenario, the management of specially protected areas, etc.), included in the Integrated Planning Study for the Island of Rhodes.

Despite the fact that the CAMP in Rhodes was considered to have been a partial success, it encountered several obstacles, such as the lack of an adequate legislative framework (i.e. planning law) and the fact that a fully operative co-ordinating mechanism at the prefecture level failed to materialise, leading to a delay in the implementation of CAMP activities. More positively, the CAMP project was instrumental in securing funds from the European Investment Bank for further activities. This second phase of the project was also implemented by MAP, through PAP/RAC, who assumed both the co-ordinating role and the task of executing more than half of the activities. The project put forward, among other things, strong arguments for the construction of the Gaduras dam, which is essential for a sustainable supply of water to the island.



The Island of Malta

This project is in its final phase and will conclude this year. It is addressing the most urgent issues of the north-western part of the island. Since most of the industrial activities require a coastal location for operational reasons, industrial activities are concentrated around the island's main port-city conurbations and along the coastline. Such activities include port development and management, the production of fresh water through desalination, energy production, offshore oil storage and tourism. In addition, urban expansion strongly competes with other coastal facilities and infrastructures.

Increased pollution, the overexploitation of natural resources, a threatened biodiversity, the degradation of the marine environment, the abandonment of traditional agricultural practices resulting in the deterioration of retaining wall systems, increased soil erosion

and the loss of fertile land, as well as heightened demands for freshwater are among the issues at stake. Cumulative impacts result in the overexploitation of the coastal strip and the marine environment.

The immediate objectives of the Project are:

- to identify and elaborate strategies, solutions, tools and actions for sustainable development, environmental protection and the rational utilisation of coastal and marine resources of the island of Malta, with special emphasis on the north-western part of the island;
- to apply the methodologies, tools and practices of sustainable coastal management and of Integrated Coastal Areas Management (ICAM);
- to contribute to the upgrading of the relevant national and local capacities;



- to provide for the practical application of the project results and experiences, creating conditions for the implementation of the post-project activities;
- to utilise the experiences and results achieved by the project in other areas at the national and regional levels.

Project activities include: co-ordination and integration; data management; participatory programme; Systemic Sustainability Analysis; marine conservation areas; ICAM; erosion/desertification; and the impacts of tourism on health.

2.6. Coastal Area Management Activities Related to Specific Issues

It has been stated earlier that Integrated Coastal Area Management (ICAM) is a horizontal process aiming to strengthen sectorial co-operation, to preserve and protect the productivity and biodiversity of coastal ecosystems, and to promote the sustainable development of coastal zones. In this respect, ICAM should be based on co-operation and co-ordination at the territorial, sectorial and vertical levels, as well as on a better understanding of the nature of the interactions in coastal zones. ICAM is a process that should be issue driven but without relinquishing its strategic dimension. Several ICAM activities, either in the form of specific projects, such as CAMP, or institutional initiatives, such as MAP's Regional Activity Centres, have been developed.

This has been done with the intention of confronting specific issues, such as urban

management, water resource management, soil erosion, the development of tourism, the protection of biodiversity, etc. Although, their proactive, adaptive and horizontal nature remains, such activities elaborate specific dimensions of the ICAM process and define its procedures and tools related to specific issues, all absolutely necessary for the sustainable development of coastal areas. Persisting concerns for ICAM activities related to specific issues are associated with:

- *A confrontation with the impacts of large urban/industrial coastal agglomerations.* The result of this phenomenon is a spatial dichotomy between heavily populated coastal areas and poorer, thinly populated inland areas with lower housing densities and less active economies. Coastal urbanisation is interrelated with biodiversity losses, a large water demand increase, waste production, and pollution.
- *A confrontation with the impacts of mass tourism,* which are not harmonised with the environment and which disregard the carrying capacity of exploiting resources.
- *A confrontation with the impacts of climate change and sea level rise.* Long-term natural and human-induced changes in the hydrological cycle constitute a major problem for the Mediterranean region especially due to the variation of precipitation for many surrounding states, itself possibly the result of climate change. Sea level rise is a result of several factors such as the reduction in river sediment supply, the destruction of natural shoreline defences and the excessive pumping of groundwater.

2.7. Mediterranean Commission on Sustainable Development: Efforts in Promoting ICAM

The Mediterranean Commission on Sustainable Development (MCSD) has assisted the Mediterranean Action Plan (MAP) in the establishment of a strategy towards sustainable development in the Mediterranean. It has highlighted that there is a need to:

- improve institutional mechanisms;
- strengthen and enforce regulatory instruments;
- provide access to information and raise awareness;
- establish incentives;
- develop pilot projects as models; and
- improve public participation.

Its more specific recommendations call to:

- regularly report on the state of the environment;
- develop new forms of partnership;
- strengthen co-operation;
- expand the role of lower-level administrations in coastal zone management;
- prepare regional guidelines for implementing national level regulations;
- prepare management plans for coastal areas, which are of special environmental interest or are subject to pressures for development; and
- prepare good practice guidelines.

The above are particularly important as they seek to sensitise Contracting Parties and other regional actors to important ICAM issues,

placing the emphasis on implementation issues and the mobilisation of various partners in the implementation of ICAM actions. These are merely recommendations to the Contracting Parties and it should be noted that there is still a lot to be gained from developing follow-up mechanisms to implement them.

2.8. Legislation and Other Coastal Zone Management Instruments

The world-wide burden for Integrated Coastal Zone Management (ICZM), from an institutional perspective, needs to be shouldered at the national level in spite of the fact that many problems might be regional or local in character. This is particularly the case in most Mediterranean countries, with their strong reliance on central administrative systems. Thus an examination of national-level activities is important. Most countries have established basic legislation concerning the regulation of the public maritime domain and also possess basic land development control and planning legislation. Typically, the existence of multiple authorities and responsibilities has led to ensuing problems related to a lack of co-ordination, if not co-operation, with gaps and duplication. This is why it is necessary to establish a national-level system and processes of integrated coastal zone management. There have been several responses by Mediterranean countries in pursuit of this aim, as presented below.

2.8.1. Land Policy Initiatives: “Conservatoire du Littoral” in France

In 1975, in the light of recommendations of the National Coastal Commission, the

“Conservatoire du Littoral” was formed. Its objective was to acquire property along the shores of beaches and lakes in order to protect such lands from urban encroachment, to preserve the ecological character of these areas and to improve public access to them, as well as to aid in the formulation of marine resource plans. Since 1975, the “Conservatoire du Littoral” has acquired 750 km of shoreline. Most acquisitions are made by private agreement, but compulsory expropriation is occasionally carried out in the public interest. The land cannot be sold thereafter and public access is generally provided. It is managed primarily by local authorities on the “Conservatoire”'s behalf. Today, the “Conservatoire du Littoral” remains a major tool for coastal management.

2.8.2. National Policy Frameworks: Law on “Spatial Planning and Sustainable Development” in Greece

Great efforts have been made in Greece over the last decade towards the promotion of Integrated Coastal Area Management (ICAM), in the context of spatial planning, in accordance with sustainable development goals. The innovative Law on “Spatial Planning and Sustainable Development”, adopted in 1999, foresees the issuing of national level Directives (“Special Frameworks for Spatial Development”) for areas of special interest, such as coastal zones, islands, mountain areas and in areas with critical environmental, developmental and social problems. Each Directive includes principles and foresees the implementation of an Action Plan that defines programmes, regulations, costs, sources, competent agencies, timeframes, etc. The

Ministry of the Environment, Physical Planning and Public Works, in collaboration with relevant agencies, formulates and issues the Directives. The Action Plan has to be revised every five years. In the above context, a special Directive on ICAM has been developed and is under review.

2.8.3. National Laws: The Shores Act in Spain

The Spanish Shores Act of 1988 is the main legislative initiative to protect and manage the marine and coastal public domain. This law specifically relates to the management of public areas of the coastal zone. It covers: the setting up of coastal boundaries; concessions and authorisations of public lands; and approval for use and protection of public lands and regulations for the use of beaches, for instance, for coastal defence and regeneration. The prime implementing coastal agency is the Ministry of the Environment.

The Shores Act defines the extent of coastal public property. It also delineates four overlapping zones measured from the inland end of the seashore in which the rights of private landowners are subject to restrictions in order to safeguard public use of, passage and access to the sea, and to ensure that development is compatible with the protection of coastal public property. Although the Shores Act creates a framework for coastal management at the national level, its focus is relatively narrow. It works to regulate coastal development and tourism, to manage the physical aspects of the coastline, and to ensure public access to the coast.

The evolution of a more integrated approach will require greater attention to integrating

marine and coastal management, increased efforts pertaining to the marine and coastal environment, and the co-ordination of the various sectorial activities in the coastal zone. Furthermore, a major problem in Spain's coastal management scheme is the overlap of jurisdiction among national, regional and local governments. Although the bulk of resource management jurisdiction is vested in the regional governments, the national government also has a role to play through the national Shores Act. Local governments participate in CZM through the development of land-use plans in beach and near-shore areas. The result is a complicated framework of coastal management and jurisdictions that appears duplicative and inefficient.

2.8.4. Master plans: Israeli Coastal Master Plan

In 1970, the Israeli National Planning and Building Board recognised that Israeli coastlines should be treated as resources of national



value, and issued an order for the preparation of national plans for the all shores of its sea and the country's lakes. The National Master Plan for the Mediterranean Coast determines: land-use along the coastal strip for beaches, recreation and sport, and for tourist facilities; the protection of antiquities, nature reserves, national parks, forests and coastal reserves; and land use for ports and other infrastructures for which a coastal location is vital.

The plan aims to prevent development for which a coastal location is not essential, and to resolve conflicts of interest among land uses that require a coastal location. It prohibits development within 100 meters of the coastline and requires Environmental Impact Assessment (EIA) as a prerequisite for the consideration of new coastal projects.

2.9. Assessment of Coastal Zone Management Activities in the Region

It is apparent that there is no standard formula for the pursuit of coastal area management in the Mediterranean. Evidence from implemented actions (identified in an ICAM assessment study performed by the World Bank and PAP/RAC) varies, reflecting the diversity of geographic conditions and the developmental/ environmental problems of coastal areas, as well as the complexity of institutional set ups. Furthermore, it indicates the:

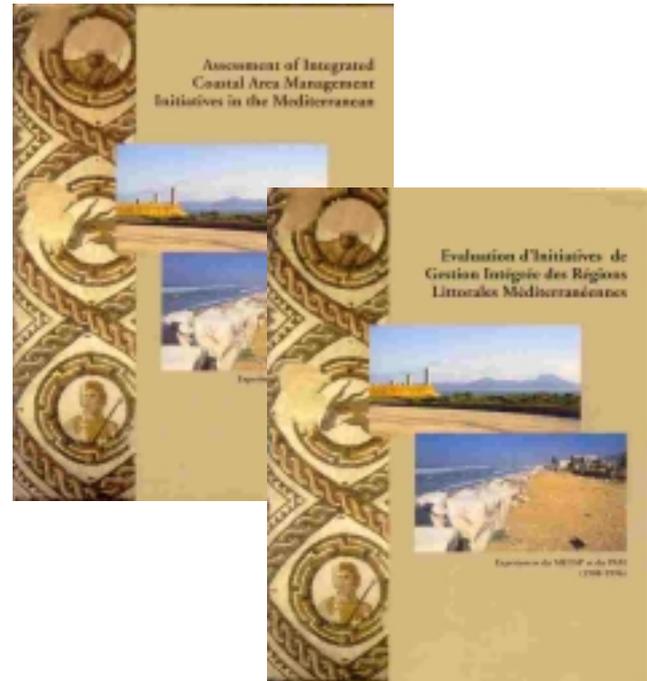
- *Need to encourage pilot actions in pursuit of ICAM at the local, regional, national and regional (supranational) level.* Within this context, it is necessary to provide funds for future initiatives. Action, through pilot projects, will not only contribute to the

promotion of the approach but will also provide valuable feedback to the theoretical framework of ICAM. For this end, the dissemination of outcomes obtained and the evaluation of the contribution from various projects, will allow the benefits of experience gained to be shared.

- *Necessity for institutional reforms with respect to ICAM.* It has become apparent that changes in existing institutional structures are a prerequisite for the successful implementation of the various initiatives, particularly for the implementation of outcomes, such as strategies, integrated plans, co-operation schemes, etc. Actions undertaken through voluntary initiatives need to be encouraged. Nonetheless, the lack of "legitimacy" remains a major obstacle.
- *Limited scope of pilot projects, irrespective of their degree of success.* Pilot projects usually incorporate elements of the ICAM process, which is a dynamic, long-term, ongoing process. Rarely do projects capture the totality of the ICAM process. Most of the pilot projects, which usually present an innovative planning approach for an area, reflect a first attempt to introduce ICAM. In most cases, this was accomplished, at least as far as the attempt to elaborate a strategic and integrated approach to deal with the problems of the coastal areas was concerned. However, the emphasis, due to time and other constraints, was usually placed on critical issues (i.e. biodiversity, combat of pollution, etc). It should be noted that in most projects the implementation of actions was not always foreseen. It is evident that second and third "generation"

ICAM projects, such as those implemented within MAP CAMPs, are needed to build upon existing experience and lessons learned and to implement a range of proposals and plans.

- *Weakness in sustaining many of the initiatives, after the completion of the programmes.* This is mainly the consequence of institutional and economic inadequacies. It seems that a stronger emphasis needs to be placed, from the start (i.e. the formulation of the project proposal) on the issue of sustainability/follow up and therefore on several other interrelated issues, such as the inclusion of various partners predominantly from the private sector, the feasibility of proposals for given conditions, etc.
- *Need to explore synergies with other initiatives* promoted even within different policy contexts. For example, the recent need to promote Integrated River Basin and Coastal Area Management has gained significant recognition. The new EU Water Directive provides significant opportunities, at least for some Mediterranean states, to sustain and incorporate coastal zone management initiatives and concerns into water management initiatives.
- *Weak integration of land-sea issues.* In most projects, the emphasis was placed on the terrestrial part of the coastal zone, which is justified given the pressures from land development speculation. Usually, marine issues capture the attention of ICAM protagonists, particularly whenever pollution incidents prevail, which pose severe threats to human health and to the viability of economic activities (i.e. tourism and



recreation). All the same, it is evident that future action should adopt a more integrated approach, in spatial terms, one which will be explicitly based on the identification of the interdependencies and continuities of ecological processes, while indicating, in a more concrete manner, the way in which these could be incorporated into coastal area management.

- *“Neglect” of certain critical ICAM issues,* mainly with respect to the use of tools, particularly economic instruments and information management. It is necessary to test in practice the opportunities, limitations and even the viability of various tools (i.e. voluntary agreements, etc.) within the Mediterranean context.

- *Need to prioritise future actions.* Most of the issues (i.e. participation, co-ordination, planning, etc.) that have been identified and examined within the various projects, are significant to 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 its resources. The uncontrolled development of tourism and recreational activities, the 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 their 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 needed in order to safeguard the viability of economic activities, to protect human health and ultimately the quality of life. The difficulties in promoting ICAM are numerous, often resulting 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 preserve the quality of these coastal areas if not to reverse the situation. Given the urbanisation trends for the entire Mediterranean region, 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 documented pitfalls.
- *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 will not only safeguard the uniqueness of the coastal environment but will also provide several “success stories” for ICAM. This is because it is easier to implement such measures in these areas, where land-use conflicts have not become entrenched.

Experience suggests that most ICAM initiatives face significant constraints related to institutional inertia, the prevalence of sectorial thinking in the development of policies and the weak actors (with the exception of governmental agencies) being the basic ones. However, it is vital that ways to overcome the regional ICAM implementation problems are investigated. This is because coastal zones present a significant asset for socio-economic development, while facing severe pressures, making action indispensable.

3. PROSPECTS, NEW ISSUES, CONCEPTS, IDEAS AND SOLUTIONS

3.1. Major Gaps and Issues

3.1.1. The Regional Level

ICAM has been accomplished within the agenda of MAP, SMAP (EuroMed's Short- and Medium-term Priority Environmental Action Programme) and other endeavours. Several activities have taken place, but without adequate co-ordination. Co-operation among regional partners on ICAM has been established. Overall, the Mediterranean co-operation scheme is in many respects a world leader, especially in terms of its scope and its sustainability. However, a few issues persist:

- A **strategic view** of the Mediterranean is still absent. ICAM falls behind not in terms of general goals and intentions but in effectively launched interventions, given the importance of coastal areas for the Mediterranean and the complexity of their problems.
- In spite of the advanced stage reached in defining goals and principles, there are **no mechanisms for ensuring that national administrations adopt** them, except in the form of very formal and rigid administrative procedures, such as Protocols.
- At the regional level, there are **no mechanisms ensuring the smooth succession of projects**, as the case with the recommendations of the MCSD Working Group on Integrated Coastal Area Management has shown.

In spite of the longstanding concern with coastal areas in the Mediterranean and a qualitative approach in outlining the dynamics involved, an accurate basis for estimating the extent of the problems, one which would facilitate regional level policy making, has not yet been found. Moreover, although indicators have been developed, there is still no adequate mechanism for utilising these within a long-term policy-making process.



3.1.2. The National Level

ICAM remains a national-level concern, although ICAM responses may vary on the basis of the particularities of the stage of development, the institutional context and environment/development issues. Interestingly enough, it has been evident that there is more than one route to the achievement of ICAM.

There are also differences in the approach to ICAM in terms of the management focus:

resource management versus traditional planning. In the case of Mediterranean countries, the prevalence of tourism and urbanisation in the coastal zones, as well as the reliance of Mediterranean countries on traditional administrative systems, favours the latter. Of particular concern though, are the increasing problems of Mediterranean coastal areas, which combine with weak administrative structures and enforcement, a lack of modernisation and policy integration, as well as the transitory character of many Mediterranean economies and the lack of resources, to form more daunting Coastal Zone Management problems.



Furthermore, there is a prevailing (world-wide) crisis of eroded confidence in government planning systems, itself part of the trend related to a diminished state role. In tandem with this are weak lower administrations, and the absence of a solid private sector and civil society

partners – who could assist states to manage coastal areas. This makes coastal management a particularly difficult task. One of the major obstacles in ICAM is the limited influence (and thus weak integration) of environmental concerns in development planning among many Mediterranean partners, jeopardising the possibilities of securing the establishment of ICAM systems at the national level.

Civil society in most Mediterranean countries is not accustomed to active participation in public affairs so there are difficulties in mobilising it to contribute to and aid with the task of managing coastal areas. In addition, the primacy of development needs does not yet allow Mediterranean societies to adopt a broader view in terms of ICAM.

Despite the fact that national-level initiatives have already taken place across the Mediterranean, administrative and planning levels have not been integrated, and often efforts cannot be sustained. Finally, there are no actual operational links between national and regional (or local) level activities.

3.1.3. The Local Level

The undoubtedly local character of the existing problems and the particularities of each case suggest that the local level is an indispensable dimension in tackling concrete coastal area management problems, provided that strong institutional mechanisms have been established in collaboration with the national level. The lessons gained from experience around the Mediterranean stem from gaps at the local level. In this respect, the following should be given special attention:

- **Local and national ownership:** Local Coastal Area Management Programme (CAMP) activity is less effective in cases characterised by a policy deficiency at higher levels. National programmes must recognise that more local levels of government should necessarily be involved in order for them to be successfully completed.
- **Leadership:** Effective and committed leadership in both the political and practical spheres is essential. Technical co-ordination should be soundly organised, connecting all participants in decision-making procedures, so that the initiative is smoothly integrated into the formal management system.
- **Vision:** Any CAMP or other ICAM initiative needs to elaborate a mission statement entailing a future vision, taking into account that the local community's long-term view is absolutely essential, which further implies that negotiation must be well organised and properly instigated.
- **Stakeholder participation:** The processes of involving all stakeholders, as well as those related to sustaining their participation throughout the succession of different project phases, constitute an integral part of the management process itself and are thus indispensable in securing the initiative's success.
- **Phased strategic approach:** Identifying key issues, as well as the place and time to address them, are among the most crucial decisions to be made. To sustain a strategic focus, it is essential to prioritise coastal problems and to proceed to tackle the easiest first, thereby securing rapid initial success, whilst boosting confidence.
- **Integration across sectors and scales of management:** Success lies in forging partnerships between the different sectorial institutions and among user groups by employing a “two-track” approach. This links the development of local governance to national policies, and to central government structures and procedures. Attention must be given to different management approaches to land and sea, bringing together the authorities responsible for these domains, as well as financiers. When transboundary water resources, such as a shared river basin are at stake, collaboration and co-ordination between the authorities involved is necessary. Of utmost importance too is the attempt to engage the private sector, which is functionally linked to the sectorial administrations and can contribute financial resources towards the actualisation of remedial activities.



- **Integration of scientific information:** Research and technical tools (GIS, EIA, SEA, CCA, inventories, monitoring, modelling, etc.) are of little value, if the institutional and societal context in which they are introduced cannot assimilate the beneficial insights that these resources may provide. Both scientists and managers must work closely as a team, periodically evaluating the usefulness of the information produced in relation to project objectives and priorities.
- **Individual and institutional capacity:** Technical and governance complexities require the formation and nurturing of multidisciplinary teams whose members are prepared to think and act strategically to resolve conflicts, administer complicated projects and who possess a deep understanding of how coastal ecosystems function, as well as the ability to liaise successfully with coastal area residents. Therefore, short- and long-term initiatives in capacity building must be elaborated.
- **Matching project activities to institutional capacity:** It is important to realistically match the scale and objectives of the project with local calibre, as well as with the national institutions involved, and the strength and commitment of the constituencies affected. While this focus may not yield the ideal plan from a technical viewpoint, it should help produce a realistic and viable strategy, given the reasonable matching of available resources (internal and external) with the permanent objective of “internalising the externalities” through economic systems.
- **The implementation of actions that occur concurrently with planning:** “Practical exercises” need to proceed concurrently with the coastal management planning phase without waiting for its completion. Short-term and cost-effective actions (such as beach clean-ups, the protection and rehabilitation of dunes, the development of water facilities, etc.) as tangible manifestations of an improved management, boost local support for the coastal management process (at the community structure level) and offer specific opportunities to test horizontal and vertical co-ordination. They also provide a basis for exploring successful approaches and implementation constraints. However, it is important that these actions emerge through a participatory process at the selected location, and that they are then supported by comprehensive and professional feasibility studies.
- **Learning and adaptive management:** ICAM is closely related to planning activities but it approaches them using new forms of integration, exploring new resource management techniques. This approach must provide the capacity to cope with uncertainty and complexity. To do so, the system should be able to incorporate new information as and when it becomes available. Adaptive management implies learning by doing, where the implementation of the programme/project creates opportunities to test and improve the scientific basis for action. Because of its high levels of uncertainty, a programme or project should be evaluated on both its short-term success and on its ability to assimilate new information.

3.2. New Mediterranean Coastal Area Challenges

Sustainable development is a global objective while offering a positive long-term vision of a society that is more prosperous and just and which comprises a cleaner, safer and healthier environment. The strategy for sustainable development should be a catalyst for policy makers and public opinion in the coming years, and become a driving force for institutional reform and for changes in corporate and consumer behaviour. To bridge the gap between this ambitious vision and practical political action, several problems posing severe or irreversible threats to the future well being of the globe and more specifically to coastal zones, should be identified. In this respect, the main threats to sustainable development are the following:

1. While increases in life expectancy are obviously welcome, in combination with low birth rates, the resultant ageing of the population is likely to herald a decline in the rate of economic growth, as well as in the quality and financial sustainability of pension schemes and public health care.
2. Poverty and social exclusion have profound direct impacts on individuals, such as ill health, suicide and persistent unemployment. Poverty often remains in families for generations.
3. Transport congestion has been rising rapidly and is approaching gridlock levels. This problem mainly affects urban areas, which are also challenged by problems, such as inner city decay, sprawling suburbs and concentrations of acute poverty and social

exclusion. Regional imbalances remain a serious concern.

4. The loss of biodiversity in Europe has accelerated dramatically in recent decades. Fish stocks in European water are near collapse. Waste volumes have persistently grown faster than GDP. Soil loss and declining fertility are eroding the viability of agricultural land.
5. Severe threats to public health are posed by new antibiotic-resistant strains of some diseases and potentially the longer-term effects of the many hazardous chemicals currently in everyday use; threats to food safety are of increasing concern.
6. Emissions of greenhouse gases from human activity are causing global warming. Climate change is likely to cause more extreme weather events (hurricanes and floods) with severe implications for infrastructure, property, health and nature.

Although few of the aforementioned unsustainable trends are new, attempts made to confront them have had limited, if any, success due to the difficulties in altering established policies and behaviour patterns and in responding in a co-ordinated fashion. Tackling these trends and achieving the vision offered by sustainable development requires that the following be done at the regional level:

- **Urgent action:** The major impacts of losses in biodiversity or climate change may only be felt many years hence, but by then they may be extremely costly to address or impossible to tackle.



- **Committed and far-sighted political leadership:** Strong political commitment will be needed to make the changes required for sustainable development as difficult trade-offs between conflicting parties will have to be made.
- **A new approach to policy making:** Policies addressing the economic, environmental and social dimensions of sustainability have developed without sufficient co-ordination. Very often, the concerns for short-term costs make difficult a coherent long-term vision where the benefits are shared among the stakeholders. Despite the extended term for their elaboration, the policies would benefit from being constructed by maintaining a systematic and constructive dialogue with all the parties concerned.
- **Policies evaluation:** The evaluation of policies' effects should integrate economic, environmental and social aspects. With this regard, Strategic Environmental Assessments (SEA) should be developed and used in a more systematic way and confronted with the various policy domains.
- **Widespread participation:** While public authorities have a key role in providing a clear long-term framework, it is ultimately individual citizens and businesses who will deliver the changes in consumption and investment patterns needed to achieve sustainable development. With this regard, the educational system should play a fundamental role in promoting a better vision of principles and objectives of sustainable development, individual and collective responsibilities, and the resulting changes of behaviour.
- **Adjustment of market prices:** Market reform is needed in terms of re-establishment of real prices and opportunities for the creation of new products and services to satisfy social and economic needs and reduce environmental pressure. With this regard, public policies should encourage the enterprises to integrate environmental and social issues in their activities.
- **Investing in science and technology:** Public financing and incentives should encourage innovation in the use of new technologies (energy, transport, information, etc.) which are less consuming natural resources, less polluting, and are more safe and economically more efficient.
- **International responsibility:** Many of the challenges to sustainability require global action to solve them. Developed countries have a particular responsibility given their development patterns and international organisations they support.

3.3. The White Paper on Coastal Zone Management in the Mediterranean: Concepts and Ideas for the Future

To a great extent, the Mediterranean is its coastal areas and islands. They contain some of the most important natural ecosystems, providing space and resources for Mediterranean communities. Thus, coastal areas can be considered a common natural and cultural heritage that should be carefully managed for the sake of present and future generations. To this end, it would be necessary to take action at the national, local and regional levels. The **White Paper on Coastal Zone Management in the Mediterranean**, prepared by PAP/RAC and promoted by MAP, proposes a number of the preliminary steps for the future.

3.3.1. Launching a Common Policy Framework

It would be necessary to develop and adopt a common policy framework for ICAM in the Mediterranean, one referring closely to initiative **principles**. Preliminary work has already been instigated by the Santorini Workshop on Policies for the Sustainable Development of Mediterranean Coastal Areas (1996). The follow-up would include the preparation, by MAP, of an extended set of principles for ICAM, possibly in the form of an **ICAM Charter or Protocol** clarifying the minimum steps to be taken by all Mediterranean countries. This needs to be widely discussed by Contracting Parties and the MCSD. PAP/RAC has been entrusted with the leading role in assessing the feasibility of such an endeavour.

MAP has a leading role in preparing a thorough analysis on the **State of the Coastal Areas in the Mediterranean Region**, with the assistance of the EU European Environmental Agency, on a regular basis to enrich discussion on coastal zones. MEDPOL, PAP/RAC, the BP/RAC and other RACs (especially ERS/RAC) can undertake such a task on behalf of MAP.

MAP can act as a catalyst in assisting the EU and Contracting Parties to develop **a vision in spatial terms** in the context of the European Spatial Development Policy (ESDP) expansion, as has been the case in Central European and Balkan countries.





Indicators of CZM to allow for the monitoring and assessment of sustainable development aspects of coastal zones, as well as for prospective analysis could also be prepared and regularly collected by the relevant MAP centres.

3.3.2. Building Political Support

Political support is necessary in terms of **adopting** the ICAM Charter or Protocol and for the establishment of long and medium-term **goals** and priorities, such as an **Action Plan**. A political statement of intention to act is a prerequisite for both regional and national level action. A special Ministerial Conference on Coastal Area Policies could be a good launching pad.

However, the most important step would be to **convince others** about the benefits of timely action in coastal areas. Inviting planning ministers to the conference to mark the launch, reflecting a wider mobilisation, would be a good

option. The third level of mobilisation could be to **steer donors** and international agencies, which could be invited to attend and persuaded to endorse the Action Plan. The MCS D and NGOs, as well as key institutions, are essential partners in this campaign. An **Action for Mediterranean Coasts Year** could represent a solid collaborative platform.

3.3.3. Establishing National Policies and Enforcement

Action at the regional level should be complemented with parallel and concurrent action at the national level. Mediterranean countries should instigate **the adoption of ICAM** in practical ways. Several routes can be envisaged to such a task depending on the particularities (structures, institutions, dynamics, etc.) of each country. However, it is expected that to a certain extent some of the following steps can be taken at the national level:

- revision of the analysis of states and pressures of coastal areas;
- revision of the policy framework (conflicts, gaps, synergy potential);
- elaboration of co-ordination mechanisms and of a long-term strategy; and
- Action Plan development.

In order to succeed in this effort, it would be necessary to **stimulate** sectorial ministries and planning ministries to co-operate. This task is not so obvious and would probably require the **assistance of civic society partners**. Convincing different audiences about the benefits of development springing from an ICAM approach is a necessary dimension of

this task. A political statement in the form of a **national white paper** could offer a framework of action for coastal areas, at the national level.

It is important to highlight the fact that adopting policies is not enough. It is vital that policies are implemented. This implies the provision of resources and the consolidation of enforcement mechanisms within most Mediterranean countries. MAP can offer technical assistance to this end by developing national visions through PAP/RAC, and other RACs.

3.3.4. Supporting Local Action

Local action is essential. To succeed in this respect, it would be necessary to instigate action at the national level by providing a flexible institutional framework that would encourage and orient innovative action.

Pilot projects are essential as they serve to contextualise and illustrate the value of nurturing coastal zones. This task requires substantial funding at levels which usually exceed the capacities of Mediterranean countries. International support programmes of the calibre of EuroMed and METAP, as well as international financial institutions can provide certain resources but it must be pointed out that commitment at both the national and local level is equally essential. MAP's role would be akin to that of a catalyst in the provision of technical support for these activities mainly, through PAP/RAC and other RACs.

3.3.5. Stimulating Partners

The context-specific management of coastal areas in the Mediterranean is not merely a

government-based activity. It is a shared endeavour, as within its processes, several agents have specific roles and responsibilities. Carving out roles and developing collaborative mechanisms to forge synergies is in itself a long-term process of adopting and testing procedures, developing mechanisms, assigning roles and monitoring progress, to name but a few. Institutions, NGOs, associations and other agents, including key private sector actors, should be sought as partners to cultivate a deeper respect for the common coastal heritage within Mediterranean societies.

In this awareness-raising endeavour, bolstering national-level activity is important. Nonetheless, support can be sought from other levels too. MAP, through the RACs especially PAP/RAC, SPA/RAC, and the BP/RAC, can provide technical assistance.



Given the budgetary constraints and capacity limitations, careful consideration will need to be given to the priority issues for ICAM implementation. Representing a first phase, the production of informed feedback should be set in motion in order to identify action priorities.

A useful step-by-step approach that begins to address the key issues can include the intention to:

1. Proactively identify opportunities to diversify coastal economies and optimise benefits for local coastal communities, drawing specific attention to agricultural and tourism-sector policies.
2. Regulate the irrational growth of coastal urbanisation and enhance affiliations between coastal towns and the hinterland.
3. Identify, supplement and effectively manage coastal assets as natural and cultural heritage, through spatial development strategies for larger areas.
4. Bolster the strategic role played by ports, harbours and related facilities paying attention to the clustering of their urban areas, including corresponding rural areas and their small adjacent towns.
5. Establish and effectively manage a representative system of coastal protected areas, including wherever possible a land-marine connection and within the framework of broader sustainable coastal development plans.
6. Improve the management of wetlands and estuaries referring these to their entire watershed.
7. Rehabilitate degraded coastal areas and resources such as areas that have been extensively “artificialised”.





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