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WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of ALBANIA

(Contributed by Dr. Lirim Selfo)

NATIONAL REPORT OF ALBANIA

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1. GEOGRAPHICAL DESCRIPTION

Albanian's 427 km of coast is dominated by a narrow flood plain opening onto the Adriatic sea and steep mountains coming down into the Ionian sea This diverse and dynamic land-sea interface has been a corridor of intense interactions between natural ecosystems and human activities for centuries. This rich diversity of coastal habitats and geomorphological features, including rocky cliffs, caves and grottos, have provided an irreplaceable natural resource base for people since the Illrian tribes first settled here over 3 thousands years ago

The Adriatic part of the Albanian coast that corresponds to the northern and central coastal area extends for a length of 273 km of which 182 km are low-lying sandy beaches while the remaining 91 km are relatively high rocky coast. Geographically, the Adriatic coastline stretches from the Buna river mouth at the Albanian-Montenegro border, in the north, to the Gjuhza cape in the Karaburun peninsula, in the south. In general, this part of the coast is accumulative. The main bays are. Drini bay, Lalzi bay, and Durresi bay whereas the main beaches are Velipoja, Tale, Durresi, Golemi, Divjaka, Semani and Vlora.

The southern part of the coastline faces the Ionian sea for a length of 154 km. The geographic borders of the Ionian part of the coast are Gjhuza cape in the north, and Stillo cape on the Greek border, in the south This part of the coast is generally characterized by steep mountains hugging the shore, alternated by small, beautiful shingle and pebble beaches and several protected bays The main bays are Saranda, Kakome, Borshit, Porto Palermos, Spiles, Jales and Bistanit (Arushes) The main beaches are Borshi, Spile, Dhermiu.

The geomorphology of the Adriatic coast is conditioned by the continuous flux of sediments carried downstream by the rivers that flow in this part of the coast. The main contributors of the 65 million tons of sediment deposited annually are Mati, Ishmi, Erzeni, Semani, Shkumbini and Vjosa rivers.

The Albanian coast typically has a big number of sunny days as high as 300 days/annually. The total amount of sun radiation is calculated at 130 kkal/cm2.ann.

The features that most contribute to the high biodiversity of the Albanian coast are complex lagoon systems such as those of Viluni within administrative borders of Shkodra district; Viluni in the Lezha district; Knella, Merxhani and Vaini in the Kurbini district; Patoku and Fush-Kuqe in the Durresi district; Karavasta in the Lushnja district; Orikumi in the Vlora district; and Butrinti in the Sranda district.

The total surface area of the lagoons in the Albanian coast is about 15,000 ha and some new lagoons are being formed in the Kravasta and in the Shkumbini river mouth.

The population in the coastal region is 1,090,504 inhabitants, which corresponds to 29.3% of the whole population in Albania. 232,989 or 21% in urban areas like the towns of Shengjin, Durres, Vlora, Orikum, Himara and Saranda. The density of population in the coastal region is 100-560 inhabitants/km^2. In the coastal region 241,700 ha (41%) is agriculture land of which 60% is used for grains, vegetable and animal forage. In the Ionian part of the coast the main agricultural activity is fruit tree growing In the coastal region forests occupy 15 2% of the surface and they consist mainly of shrubs and low forests.

One of the most characteristic habitats of the Albanian coast are lagoons. Typically the high rate of erosion in the mountains inland resulting in the transportation of high sediment loads to the coast, together with the tideless nature of the lower Adriatic Sea, has created complex delta mosaics and coastal lagoons which in turn provide a suitable habitat for a great number of animal and plant species. From north to the south there are 19 ESAs among those existing and those proposed to be protected. The present number of 18 ESAs is the result of a study done in the framework of Coastal Zone Management programme which aimed at recording and identifying areas of biological interest in the Albanian coast. They are.

SITE 1: Velipoja hunting reserve 2,200 ha
SITE 2: Name of the area: Vain Reserve within the zone from Drini river mouth to Mati river mouth
SITE 3: Name of the area: Fushe-Kuqe Patok in Rodoni bay
SITE 4: Name of the area: Rodoni cape
SITE 5: Name of the area: Lalzi bay and Rushkulli lagoon
SITE 6: Name of the area: Lagjit cape (Turra castle) 330 ha
SITE 7: Name of the area: Karavasta - Divjaka 2,000 ha
SITE 8: Name of the area: Pishe-poro pine forest, Viosa rivermouth & Narta lagoon 15,000 ha
SITE 9: Name of the area: Vlora bay
SITE 10: Orikumi lagoon 130 ha
SITE 11a: Name of the area: Sazani island 5.7 KM^2
SITE 11b: Name of the area: Karaburuni peninsula
SITE 12: Name of the area: Rrèza e Kanalit and Llogara
SITE 13 and 14:Name of the area: Vunoi canyon and Porto Palermo along the shore from Dhërmiu to Porto Palermo
SITE 15: Name of the area: Kakomese and Qefali bays in the zone from Cape Qeparoi to Cape Qefali
SITE 16, 17 and 18: Name of the area: Butrinti lagoon, Ksamil island and Stillo island and cape in the zone from Cape Qefali to the Greek border

At present, the main economical activity in the Coastal Zone is agriculture. Industrial activity in this area at present is very low In towns the main activities are trade, transport, building, building materials, food and light textile industry.

Still used, in the Coastal Zone, are traditional and extensive ways of exploiting of the coastal resources like traditional fishing practices and reed cutting for housing needs in the area. Likewise, extensive grazing by cows, water buffalos, and sheep in and around the lagoons, river deltas and salted lands is also present

The Albanian coast is still relatively intact ecologically, due to limited settlement on much of the coast. However, due to the fact that coastal regions are attracting population faster than most inland areas in Albania, competition is increasing over the allocation and use of coastal and marine resources, including space.

2. PROBLEMS

The main threat to environmental quality in the coastal region is the direct discharge of the untreated sewage into the sea. The same situation exists for the collection, transportation and treatment of the urban solid waste. A new problem that did not exist before is air pollution from the continuous increase in the number of private cars which, in most cases, are second hand cars in bad condition. Pollution from industrial activities is, at present, at a very low level due to the fact that most of the industrial activities, as mentioned, have been closed. In the rural areas, a better situation exists related to the level of pollution of land and surface/ground waters due to a smaller use of pesticides and chemical fertilizers.

Main threats to biodiversity come from uncontrolled construction, illegal tree cutting, illegal hunting and fishing. All these phenomena that were typical of the transition period now, with the establishment and the improvement of the legal framework and the establishment of the proper institutional structures responsible for the controlling and implementation of respective laws, are in steady decline

3. INSTITUTIONAL STRENGTHENING AND LEGAL STRUCTURE

So far problems related to territory planning and development of the Coastal Zone have been spread over a great range of ministries and specialized institutions without the existence of a single coordinating unit.

In the program of the democratic government the Coastal Zone has been identified as a priority area for the economic and social development of the country.

At the moment the highest state body responsible for planning and urban development is the National Council of Territory Adjustment (NCTA), which stated functioning in 1992, chaired by the Prime Minister. This structure is responsible for the approval of all development proposals that are considered of national importance in the CZ. The National Council of Territory Adjustment has local branches that are responsible for licensing developments of local importance. Another state body that deals with problems of touristic development in the coastal region is the National Committee of Tourism Development (NCTD). This committee started functioning in 1993 and, as mentioned, deals with tourist developments which are also due to pass before the NCTA.

Until now, Albania did not have a Integrated Coastal Development Strategy, and unfortunately environmental issues were not considered in the preparation of any sectorial policies. Recent developments in the last 3-4 years have been putting emphasis on the alternative for integrated and sustainable development, which take into consideration the protection and wise use of natural and biological resources. In this recently created situation the importance of the EIA as a instrument for the evaluation of impacts on the environment of different development schemes is growing very fast

The role of the Committee of Environmental Protection (CEP) is that of controlling all economic and social developments in the country and evaluating their impact on the environment.

The present Albanian legal framework lacks any specific legislation on the protection and sustainable development of the Coastal Zone Nevertheless, in the last 3-4 years a certain number of new laws and governmental decisions have directly or indirectly tackled protection and conservation in the Coastal Zone. Some of them would be Law on Environmental Protection, Law on Territorial Planning (asking for a 300 m zone from highest tide line to be left free of any development), Law on Forests and Forestry Police, Law on Hunting and Protection of Wild Flora and Fauna, etc, Through this legislation, although sometimes not specifically designed for the coastal zone, bases have been laid for guiding future development in the direction of sustainable use of natural resources in the coastal zone.

Being fully aware about the need for a proper and complete legal and institutional framework that would match the needs of a sustainable development, we have now prepared a draft law on Biodiversity and Nature Protection This new law foresees the creation of a National Council for the Protection of Landscape and Biodiversity, which will be the competent body responsible for the evaluation of development that might have an impact on environmental quality.

4. PUBLIC AWARENESS

Albania is a country where public participation in decision making has always been very small, if at all, and we can easily say that there is no tradition at all of public involvement in the process of decision making This situation can be easily understood by recalling that for more than half a century this country was ruled by a dictatorial regime Now, with the creation of several NGOs made possible by the existence of democratic laws during recent years, public awareness and participation in decision making is becoming a growing process In this process, the press and mass media in particular are systematically working in concert with governmental and non-governmental organization for a quantitative and qualitative increase in the number of programs aiming at the protection of the environment, and the conservation of natural resources. In this context, several programs have a specific component that deals with environmental education. Meantime we are in the process of fund seeking for the preparation of national strategy on environmental education, and in particular on public awareness. This strategy will address issues like wise use of ecosystems, plants and animals, and the multiple use of them for economic, educational, scientific and recreative purposes.

Of great interest is the production of booklets about the values of specific ecosystems and their impact on everyday life of local peoples, like one on the ecosystem of Divjaka forest-Karavasta lagoon. Also, a pilot project will address the potential for ecotourism in the local communities in the coastal area. These projects aim at training local people in identifying and using local resources in a sustainable way Other projects dealing with environmental quality in beaches and coastal towns are under preparation All these projects and programs aim at raising awareness of people in rural and urban areas toward the protection of nature, sustainable use of natural resources and lowering of the level of pollution

5. INTEGRATED DEVELOPMENT OF THE COASTAL ZONE

The economic development of the country and the potential that the coastal zone has in boosting such development as well as the obligations stemming from the Albanian membership in the Barcelona Convention, have conditioned the interest shown by the Albanian government for studies and different projects focusing in the coastal zone. The necessity for the preparation of integrated coastal zone management programs (ICZM) is explained by the following reasons:

- the coastal region in Albania, compared to the other parts of the country (and on the basis of experience from other parts of the world), is the most important economically valuable space, from both development and environmental points of view. The program of the democratic government has considered it as a priority development zone;

- the advantage of the Albanian coastal zone is that the development process has not yet started, so that accumulated international knowledge and practice in environmentally sustainable integrated planning and management of coastal areas can be applied at its outset;

- although population levels in the coastal zone are rather limited so far, the economic and social liberalization in Albania will cause many people to migrate towards the coast;

- initiation of a permanent CZM process and preparation of the CZM Action Plan of the coastal regions represent a powerful tool for securing a rational use of natural resources, protection of biodiversity and creation of institutional foundations for the implementation of an appropriate development strategy based on the concept of sustainable development;

Albania, as a signatory of a large number of international conventions, contracts and other legal documents (such as Ramsar, Bern, Biodiversity Convention, and Law of the Sea), is obliged to implement an effective system of coastal management, not only in order to resolve problems of its own coastal zones, but also to fulfill its responsibilities under these international agreements.

The ICZM is directed towards the preservation of biodiversity, prevention of environmental problems in the future, and the realization of sustainable development in the coastal zone through area and site-specific projects. The basic elements of ICZM applied in the Albanian coastal zone include:

ICZM could be defined as an adaptive process of resource management for sustainable development in the coastal areas. An essential perquisite for ICZM is full understanding of interrelationships among the coastal resources, their use and mutual impacts of development on the economy and the environment. These interrelations need to be understood and expressed not only in physical and environmental terms, but also in economic terms which are important in planning, policy formulation implementation and performance evaluation The present organization of environmental management, and the activities implemented so far (especially through the activity of CEP) show that, even under very limited conditions, this concept has been accepted

ICZM is a permanent process in which plan preparation is just one, though important, activity. The importance of the ICZM Plan of the coastal region of Albania lies in the fact that, apart from long term solutions requiring concerted efforts of a large number of local and national stakeholders, it selects priority issues and areas, particularly those in need of protection, or those unequivocally suitable for development, for which special solutions are offered. Such activities are considered "hot spots" and/or "pilot areas" within a long term strategic plan.

Participation of local and national specialists in plan preparation, and of other stakeholders in decision-making phases is of particular importance Apart from the pure practical benefits, this concerns another important component of the project. transfer of international knowledge and experience in ICZM, local capacity building for ICZM, and facilitating transfer of national specialist knowledge and experience to the international team, for creating synergies and substantial improvements in the product

Three components were determined as the focus of the Plan tourism development, biodiversity protection, and institutional strengthening. The project adopted a much wider approach to the compilation of information, analysis, and planning of coastal regions in order to gain comprehensive insights into the situation, problems conflicts, constraints and opportunities. However, the above three components were the focus of the Plan

Finally, a number of tools and techniques were used in project preparation, including coastal field surveys (rapid environmental assessment, GIS, scenarios development, etc.). The direct benefit was that local and national specialists were directly involved in their implementation.

In collaboration with the UNEP/MAP Co-unit for some years there has been a monitoring program on water quality of the Adriatic and Ionian seas In 1993 CEP, in collaboration with UNEP/MAP Co Unit, started a Coastal Zone Management Program (CAMP) which consists of a number of different activities related to the identification of natural potentials, as well as other activities that precede and orient the economic development of the coastal zone towards sustainable use of natural resources, like the following·

Systemic and prospective analysis, development/environmental scenarios in Albania
Sectorial studies
Integrated management of coastal and marine areas (ICAM) with particular interest in the Durres-Vlore region.

As a result of the above mentioned activities, the ICAM program for Durres-Vlore, the Coastal Profile of the Region has been prepared, including identification of major environmental issues, and an outline of the expected development processes. This document is mainly the result of a number of preceding sectoral reports, and provides identification of the physical environment, the natural resource base, the socio-economic context, physical systems and institutional framework of the region highlighting the main potentials, major physical processes and development patterns, conflicts between different uses, and specific coastal management priorities in the region The ICZM Plan for the Durres-Vlore region is in its final stage of preparation and will be completed within the first half of 1996

During 1994, another cooperation program has started, this time between the Albanian Government and the World Bank. The main output of this program will be a Coastal Zone

Management Program (CZM) which will also provide a protection and development strategy. The strategic objectives of the Plan are to·

- Promote conservation of Albania's biodiversity, including marine, freshwater, and intertidal habitats,
- Promote conservation of Albanian's cultural heritage, including historical, cultural, architectural and archaeological sites of interest,
- Promote the expansion of the Albania's coastal and marine-related tourism and ecotourism industry, other activities, and investment opportunities;
- Enhance employment creation and maximize benefits to local people,
- Enhance the institutional capacity to manage and implement recommended actions and projects; and
- Recommend a series of investment projects that will help to "kick-start" the coastal economy in a incremental way while providing a vision of the overall CZM program in a "step by step" implementation program

Basic principles adopted in the plan preparation were selected so as to make sure that the CZM would facilitate integration of sectoral interests, productive coordination of responsible institutions, resource use compatibility, and equity of values among different users. All proposals in the plan were evaluated through the following criteria

a. Biodiversity and environmental protection Given the important role of the coastal and marine habitats, biodiversity and environmental considerations should be considered first, and from there determine what level of development an area can withstand. It is essential that upstream impacts as well as the impacts of adjacent activities are accounted for. Criteria for the establishment of "Environmentally Sensitive Areas" (ESAs) should be concluded first, and from this an allocation of different ranges of protected areas made.

b. Tourism, Conservation and Cultural Heritage Tourism is increasingly recognized as an important source of foreign exchange. Given the present situation of industrial activities, and the relatively good health of the remaining natural environments, environmentally based tourism, that is not only sensitive to coastal and marine habitats but which also enhances their quality, is the most compatible development option. Linking tourism with nature conservation, through the establishment of protected areas, not only provides an incentive for environmental standards for facilities, but ensures that large areas of nature are protected.

c. Institutional Capacity Building. The CZM process and initial planning stages will need to put much time and energy into assessing which level and type of organizational responsibility, cooperation and implementation is most suitable to particular places and activities

5.1 North Coastal Region

Two master plans of development and five integrated management plans for the areas of high biodiversity in the North Coastal Region have been identified . Typical of this zone is the presence of deltas, lagoons, small islands, reed beds, salt marshes, and mudflats that must be classified as Environmentally Sensitive areas (ESAs) where environmental protection is a priority. In these areas all other activities like agriculture, industrial and urban developments should take into consideration the protection of biodiversity. It has become a necessity to reconsider existing ESAs in order to increase their number and their classification according to IUCN categories. The implementation of integrated management plans will make possible the development of sustainable tourism (building of new touristic structures and reconstruction of the existing ones) compatible with the environment in the area.

Some fast calculations about the implementation cost of CZM give 43 million USA$ as public investment needed in this area over a period of 10 years. Such interventions are grouped as immediate (1-2 years), mid term (3-5 years), and long term (6-10 years). In these investments, those ones related to the institutional strengthening which will start with the creation of a authority for the coordination and the finalization of the development master plans and integrated management plans of the North Coastal Region, are considered as immediate.

Planned in the mid term and long term investment projects are activities like increases in public awareness, training for touristic activities and sustainable management of the lagoons, investments in infrastructure (roads, airports, sewers and sewage water treatment, system for the collection, transport and treatment of solid urban waste) as well as replantation of damaged coastal forests, reed beds, etc

5.2 Southern Coastal Region

This part of the coast still has pristine and virgin areas. It is characterized by a great variety of physical and natural habitats like steep mountains that reach the shore, grottos and caves, small harbors, bays, lagoons, excellent snorkelling and diving sites, islands, archaeological remains as well as a great biodiversity This area doubtless represents the most attractive part of the Albanian coast.

This exceptional beauty and richness of Albanian nature is in some aspects quite unique in the whole Mediterranean basin, and needs great care in the form of integrated management. Based on this, the southern coastal region has identified three planning projects that spatially correspond to North, Central and South planning zones. Each of them comprises a variety of habitats like coastal area, wetland, and areas of high biodiversity with a big potential for tourism development. Within each of these Master plans several Integrated Master plans are proposed. Such Integrated Master Plans cover the area of Orikum, Llogora and the Kanali Coast, Vunoi Canyon and Jala, Porto Palermo, Ksamil and Butrinti Lake.

Like for the Northern Coastal Zone, for this zone also the amounting of the public investments needed for the implementation of the recommendations of the study have been calculated. The investment is foreseen in three phases for two projects; Karaburuni project and Sarand-Butrint project.

The cost of the Karaburuni project is calculated at 51 million USAS and the Sranda-Butrinti project is calculated at 56.5 million The spread over time of the required investment as well as the budget brakedown is very similar with the northern region

One of the specific achievements of the program for the development of the Coastal area is the realization of a integrated analysis which examines the interaction among important sectors like tourism, water resources, agriculture, specially protected areas and infrastructure.

The concrete implementation in time and quality of these plans and projects will assure a sustainable development and nature conservation of the Albanian Coastal Zone.

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26-27 avril 1996 - Ile de Santorin, Grèce

Rapport National de l'ALGERIE

(Avec la participation de M Messaoud Taieb)

RAPPORT NATIONAL DE L'ALGERIE

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Zone relativement la plus peuplée du territoire algérien, l'espace littoral de l'Algérie demeure toutefois très inégalement occupé et exploité Il bénéficie actuellement de l'attention de plus en plus affirmée des pouvoirs publics, tant en raison de préoccupations que créent déjà la surexploitation ou les pollutions qui concernent certains secteurs, qu'en raison des préoccupations particulières qu'exige globalement cet écosystème fragile.

1. LES CARACTÉRISTIQUES GÉNÉRALES DU LITTORAL ALGÉRIEN

Développant 1200 Km de l'Ouest à l'Est, entre les frontières marocaine et tunisienne, le littoral algérien offre une grande diversité morphologique ainsi que des contrastes marqués au niveau de la pluviométrie qui désavantage nettement sa partie occidentale · moyennes annuelles de 400 à 500 mm de pluie, contre des moyennes annuelles de 900 à 1200 mm de pluie pour la partie orientale.

Malgré cette petite restriction, cette façade littorale bénéficie de conditions bioclimatiques privilégiées par rapport au reste du territoire national, ce qui explique, tout au moins en partie, ses ressources, les activités qu'elle regroupe ainsi que son peuplement.

Cet espace couvre 9 824 Km^2 soit 0,4% de la superficie totale du pays et englobe parmi les 159 communes[1] qui le constituent, les territoires de trois grandes métropoles Alger (1.500.000 habitants), Oran (650 000 habitants), Annaba (305 000 habitants)

1.1 Les ressources naturelles

Outre les avantages directement liés à leur association au milieu marin (ressources halieutiques, atouts balnéaires), les zones côtières algériennes bénéficient d'appréciables autres ressources sur le plan agricole et surtout hydraulique

- Les ressources halieutiques

Le potentiel halieutique est estimé à 480.000 tonnes dont 200.000 tonnes exploitables annuellement avec un net avantage pour la partie occidentale des côtes algériennes qui dispose de la moitié de ce potentiel exploitable (100.000 tonnes)

La production halieutique actuelle atteint prés de 50% de ces possibilités (90.000 tonnes en 1994). Les programmes en cours ou envisagés (aménagement et extension des infrastructures, renforcement des moyens de pêche .) permettront de doubler cette capacité avant 2010.

On note également des programmes de développement de l'aquaculture avec des projets déjà engagés, dans les zones notamment d'Alger et d'Annaba.

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[1] En réalité 127 communes auxquelles s'ajoutent les 33 communes que compte l'agglomération d'Alger, considérée ici dans son ensemble.

- Les ressources hydrauliques

C'est le domaine où se traduit le mieux le privilège naturel de la façade littorale par rapport au reste du territoire Cet espace draine 87% des écoulements de surface du pays dont 11% actuellement mobilisés par divers ouvrages Sur un apport total de 10,85 milliards de m^3, 1,18 milliards de m^3 sont ainsi mobilisables (état de l'année 1994)

Pour les eaux souterraines, ce même espace dispose au niveau de ses nappes, d'un volume annuel exploitable de 1,26 milliards de m^3, soit 21% du potentiel du pays.

- Le potentiel agricole

En raison de la prédominance du domaine montagneux pour une grande partie de la façade algérienne (surtout dans sa partie orientale), le potentiel agricole est qualitativement réduit lorsqu'on ne considère que les communes maritimes

Toute la profondeur des plaines littorales n'est pas ainsi prise en compte et la surface agricole utile que totalise la frange strictement littorale, se limite à 32.458 ha

Il s'agit toutefois de terres de grande valeur, en raison des potentialités agronomiques des sols et des avantages complémentaires que leur assurent d'une part, les possibilités d'irrigation et d'autre part, les données climatiques (régulation marine notamment).

Tout en limitant les surfaces cultivables, le domaine montagneux renforce toutefois le potentiel agricole, grâce aux espaces forestiers (forêts et maquis . 292 660 ha) qui le caractérisent et qui offrent surtout à l'Est, d'importantes possibilités d'exploitation (liège, bois).

- Les ressources touristiques

Les côtes algériennes disposent de toute la gamme des ressources balnéaires en raison de l'étendue et de la diversité morphologique du littoral (falaise, côtes rocheuses, plages), renforcées d'une part, du fait des compléments qu'offrent les espaces montagneux associés (tourisme climatique et thermal) et d'autre part, au niveau de la multitude de sites historiques et archéologiques qui comme pour tout le pourtour de la Méditerranée, attestent des civilisations qu'a connues ce littoral

- Les sites d'intérêt environnemental

En fonction des ressources naturelles dans lesquelles s'inscrivent en bonne place la flore (massifs et étendues forestières et de végétation naturelle) et la faune, divers sites d'intérêt environnemental particulier parsèment l'espace littoral algérien, dont la position en latitude entre les zones tempérées et tropicales rehausse en outre l'intérêt écologique, pour diverses espèces d'oiseaux migrateurs notamment.

1.2 Le peuplement et les activités

Indépendamment de ses avantages naturels qui ont favorisé le développement des activités, le littoral algérien a également connu dans un passé récent des conjonctures économiques qui ont renforcé la concentration particulière qu'il réalise actuellement, sur le

plan des activités et du peuplement (exploitation coloniale et politique d'industrialisation entreprise depuis l'Indépendance).

Les 159 communes qui se partagent la façade littorale algérienne, regroupent ainsi 4.681.706 habitants selon le dernier recensement en 1987, soit 20% de la population que totalisait alors le pays.

Le maintien de la même proportion supposerait actuellement quelques 5,5 millions d'habitants et une densité de peuplement de 500 habitants/km^2 en moyenne (477 habitants / km^2 en 1987).

Cette population est toutefois très inégalement répartie sur l'espace littoral dans son ensemble Elle se concentre particulièrement sur les trois grandes metropoles (Alger, Oran et Annaba) qui totalisaient à elles seules 50% de la population littorale et les communes urbaines en second lieu Mostaganem, Skikda, Bédjaïa .

Le taux d'urbanisation de la zone littorale se situait à 54,9% en 1987, assez nettement au dessus de la moyenne nationale pour la même date: 49,6%.

Ce taux d'urbanisation particulier et le fait qu'il atteigne des valeurs bien supérieures dans les communes et zones métropolitaines les plus peuplées, soulignent que les activités dominantes de la façade littorale sont liées a l'industrie et au trafic portuaire, même si l'agriculture, la pêche et le tourisme sont loin d'être négligeables.

- Le trafic portuaire qui assure la quasi totalité des échanges extérieurs de l'Algérie, est partagé entre 13 ports à fonction mixte (commerce et autre activité) où se particularise évidemment le rôle d'Alger, Oran et Annaba et deux ports spécialisés pour les hydrocarbures: Béthioua (second port d'Arzew) et le nouveau port de Skikda.

- L'industrialisation qui n'avait que très timidement démarré en Algérie, dans les dernières années de la période coloniale, relève telle qu'elle se présente maintenant quasi essentiellement de l'initiative nationale. depuis l'Indépendance

Les choix opérés au démarrage de cette stratégie ont privilégié l'industrie lourde et les complexes industriels côtiers . sidérurgie (Annaba), pétrochimie (Arzew puis Skikda), mécanique (Alger).

Ces premières installations se sont renforcées depuis, pour ces grands pôles industriels et d'autre villes côtières (Mostaganem, Ghazaouet, Bedjaia, Jijel et bien d'autres localités), même si les industries de transformation ont également essaimé sur le reste du pays. L'avantage comparatif créé par le développement des infrastructures et des services, pour la zone côtière a en effet maximisé les localisations industrielles sur cet espace, notamment au niveau des investissements privés.

Cet avantage est directement lié au niveau de la répartition des zones industrielles du pays : les villes côtières totalisent 34 zones industrielles, soit 55% du nombre total créé à l'échelle nationale et compte en outre, 66% des superficies occupées globalement par ces zones industrielles : plus nombreuses les zones industrielles des villes littorales sont en moyenne plus grandes que celles des autres zones du pays

Dans cette concentration des activités industrielles sur le littoral méditerranéen du pays, se note évidemment le poids particulier que représentent à elles seules les industries lourdes.

• L'agriculture comme déjà dit, représente un atout de choix malgré sa place quantitativement réduite, en raison de la qualité et de la variété des spéculations pratiquées: maraîchage, agrumes...

• La pêche dont nous avons souligné les possibilités de développement ultérieur, utilise actuellement les 13 ports de commerce mixtes, 8 ports de pêche spécialisés et 10 abris de pêche.

• Le tourisme offre également un potentiel très insuffisamment exploité, ne serait-ce que pour les ressources balnéaires. La capacité installée s'élève pour l'ensemble du littoral à 36.330 lits dont 30 081 lits classés et cette capacite se concentre quasi exclusivement sur trois pôles :

- Alger avec 5 complexes ,
- Oran avec 1 complexe (les Andalouses) ,
- Bedjaia avec 1 complexe (les Hammadites)

Un programme ambitieux de zones d'expansion touristiques est envisagé pour le proche avenir, sur la base des études qui ont recensé et réservé les sites qui s'y prêtent.

1.3 L'état d'exploitation actuel du littoral algérien

L'état de développement et d'exploitation des zones côtières de l'Algérie est encore aujourd'hui très contrasté, malgré la littoralisation des activités et du peuplement à l'échelle du pays. En effet ce n'est, sous forme de poches autour des principales villes, qu'une faible partie de cet espace littoral qui est développée et relativement surexploitée

Sur les 128 ensembles communaux[2] que compte la zone côtière, on constate en effet que moins d'une trentaine d'entre eux (28 ensembles communaux) soit moins de 25 %, apparaissent ainsi dans ce cas Il s'agit des communes qui affichaient une densité moyenne de peuplement supérieure à 500 habitants/km2 en 1987.

A la problématique de mise en valeur et de création des conditions du décollage économique qui caractérise encore près de 80% de notre espace côtier, s'opposent ainsi pour les poches de concentration des activités constituées à partir des principales villes et surtout des métropoles littorales, les questions de maîtrise et de gestion du développement qui en découle.

Pour les zones marginalisées, liées en general aux espaces où predominent les caractéristiques montagneuses, les difficultés relèvent notamment des coûts des infrastructures qui permettent d'éliminer l'enclavement condition évidemment préalable à la mise en valeur effective des ressources et au développement

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[2] En comptant les 33 communes d'Alger pour un seul ensemble

Au niveau des poches de développement, il s'agit au contraire de gérer et maîtriser les effets de ce dernier, à travers

- la lutte contre les surexploitations ou le gaspillage des ressources (protection des terres agricoles, contrôle des carrières et sablières .),

- le contrôle des pollutions urbaines et industrielles (rejets des grandes agglomérations, industries polluantes: pétrochimie, électrolyse du zinc, pâte à papier ..)

A ces préoccupation différenciées selon les zones, s'ajoutent pour l'ensemble de la façade littorale, les risque naturels liés à la sismicité et surtout à la puissance de l'érosion, en fonction des reliefs et de la proximité du niveau de base

Enfin, il est à souligner que toute prospective concernant le développement durable de l'espace côtier algérien, est étroitement liée aux conditions de faisabilité que doit lui assurer, la stratégie nécessairement plus large d'aménagement du territoire.

Cet espace littoral est en effet, géographiquement et naturellement privilégié par rapport à tous les espaces intérieurs du pays, ce qui est à la base des pressions démographiques aggravées que subissent ses poches de développement Tout traitement de l'espace littoral suppose ainsi, sous peine d'inefficacité voire de nullité de ses résultats (par simple aggravation des pressions démographiques en tout point de développement du littoral), le traitement concomitant et parallèle des vastes bassins de migrations, que sont les régions économiquement marginalisées de l'intérieur (montagnes et régions steppiques)

Dans le cas de l'Algerie, l'avenir des espaces côtiers s'inscrit d'abord, au delà des solutions liées aux problèmes qui y sont décelables, dans le cadre d'une prospective globale liée au rééquilibrage des conditions du développement, à l'échelle de tout le territoire

2. LA PROTECTION DES ZONES COTIERES

Tout l'espace littoral algerien est couvert par différents textes qui définissent le régime juridique de base qui le concerne, ses modalités d'aménagement et d'utilisation ainsi que les protections particulières dont il bénéficie

Le régime juridique de base traite à travers des dispositions du code civil et du code maritime, la loi relative a l'aménagement et l'urbanisme et un décret relatif aux règles de gestion des biens du domaine public de l'Etat

- du régime juridique qui s'applique au domaine marin et littoral ;

- des définitions du domaine public maritime ;

- des définitions des espaces littoraux couverts par des dispositions particulières, en matière de construction et d'utilisation du sol,

- des règles de délimitation du domaine public maritime naturel

Si le domaine marin et le domaine public maritime bénéficient à travers ces textes d'une définition complète et précise, il n'en est pas encore de même du domaine littoral qui

n'est d'ailleurs considéré en tant que tel, que par la loi relative à l'aménagement et à l'urbanisme et défini non pas en tant que milieu, mais sur la base, en général, de distances à partir du rivage.

"Le littoral au regard de la présente loi englobe toutes les îles et îlots ainsi qu'une bande de terre d'une largeur minimale de 800 mètres longeant la mer incluant.

- toutes les terres, versants de collines et montagnes, visibles de la mer tout en n'étant pas séparés du rivage par une plaine littorale;

- les plaines littorales de moins de 3 kilomètres de largeur ,

- l'intégralité des massifs forestiers dont une partie est en littoral tel que définie ci-dessous ;

- l'intégralité des "zones humides" et leurs rivages sur 300 mètres de largeur, dès qu'une partie de ces zones est en littoral tel que définie ci-dessus"

Une étude confiée à l'Agence nationale d'aménagement du territoire, pour l'élaboration du Schéma directeur d'aménagement du territoire, doit normalement mettre fin à cette insuffisante définition de l'espace littoral, en établissant selon les normes techniques requises une définition plus opérationnelle, tant pour l'aménagement que pour la problématique du développement durable

Pour l'aménagement et l'utilisation des zones côtières et du domaine marin, les textes disponibles réglementent les zones et sites touristiques, les conditions d'utilisation des plages, l'installation et l'exploitation des terrains de camping, l'exploitation des ressources halieutiques et les activités de pêche.

Enfin, les textes relatifs à la protection particulière spécifique au littoral ou intégrant également le domaine côtier, sont les plus nombreux. A la Convention de Barcelone à laquelle l'Algérie a adhéré en 1980, s'ajoutent divers textes traitant de la protection de l'environnement (loi relative à l'environnement notamment), des dispositions liées à divers types de polluants et un décret récent (1994) pour l'organisation de la lutte contre les pollution marines.

3. LES POLITIQUES ET LES INSTRUMENTS DE PROTECTION DU LITTORAL ET DU DOMAINE MARIN

A partir des textes et réglementations qui les concernent spécifiquement ou les intègrent, les domaines marin et côtier sont soumis à diverses dispositions dont l'application relève aussi bien du niveau national que local et des divers secteurs concernés

- Gardes côte pour la pêche,outre leurs autres tâches (circonscription maritimes) ;

- Services de l'urbanisme (Direction au niveau des wilayas) ;

- Inspecteurs de l'environnement (au niveau des wilayas)

- etc.

Dans le cadre de la politique nationale d'aménagement du territoire, il est actuellement envisagé, en liaison avec tous les secteurs concernés, d'élaborer une politique spécifique d'aménagement, de protection et de valorisation du littoral:

- la nouvelle loi sur l'aménagement du territoire (en remplacement de la loi relative à l'aménagement du territoire datant de 1987), fixe le contenu de cette politique. Son adoption doit intervenir très prochainement ;

- le contenu de cette politique spécifique pourra être précisé par une loi relative au littoral;

- dans l'intervalle, comme souligné déjà, l'Agence nationale d'aménagement du territoire a été chargée d'élaborer le Schéma directeur général d'aménagement du littoral qui outre les principes spécifiques généraux, devra établir des programmes régionaux d'aménagement intégré de cet espace.

Les actions de développement des zones côtières seront ainsi mieux précisées et surtout coordonnées avec ces nouveaux instruments Il est cependant à préciser que d'ores et déjà, ces actions prennent particulièrement en compte les preoccupations relatives à l'environnement. Outre les protections particulières consacrées par les textes et règlements (rejets et polluants divers) et les études d'impact, instituées depuis 1987 pour les grands ouvrages, le domaine marin et littoral a bénéficié récemment (decret du 17 septembre 1994) d'une organisation de la lutte contre les pollutions marines et de l'institution de plans d'urgence spécifiques.

En impliquant tous les secteurs concernés, cette organisation repose sur un comité national, des comités régionaux (trois) et des comités locaux (wilayas maritimes) chargés chacun à son niveau, d'assurer et de coordonner toutes les tâches qui permettent de mettre en oeuvre le plan d'urgence qu'implique toute pollution "pouvant constituer un danger grave et imminent ou engendrer des dommages au milieu marin, au fond des mers, sur le littoral ainsi qu'aux intérêts connexes"

Les ONG (le mouvement associatif est en pleine expansion depuis la promulgation de la loi sur les associations à la fin des années 80) participent de plus en plus aux questions de la gestion territoriale en général et dans leur dimension littorale particulière, quand c'est le cas. Les associations participent au niveau local à l'élaboration des instruments d'aménagement, interviennent à leur propre initiative sur des dossiers et problèmes particuliers et participent activement, à la sensibilisation du public vis à vis de la gestion de l'environnement parallèlement aux missions et actions assurées à ce niveau, par le Ministère chargé de l'Environnement.

Les problèmes actuels de mise en oeuvre des diverses dispositions ou des instruments, relèvent essentiellement de la multiplicité des intervenants, d'où le projet d'élaboration d'une politique spécifique pour le littoral

Les projets de gestion de l'espace côtier comptent déjà des réussites prometteuses, avec notamment la creation des parcs nationaux littoraux (Djurdjura, El Kalaa..), qui bénéficient de l'appui international, en raison des niches écologiques qu'offre l'Algérie, à diverses espèces d'oiseaux migrateurs

CONCLUSION

L'état d'exploitation actuel des espaces littoraux algériens est porteur de très larges espoirs pour l'avenir malgré les points noirs que constituent déjà les pôles de concentration des activités et de l'urbanisation, notamment autour des trois grandes métropoles que sont Alger, Oran et Annaba.

Outre la dimension encore maîtrisable qu'offrent en effet ces points noirs, à condition d'agir sans retard, l'essentiel de ces espaces littoraux demeure encore peu exploité et donc passible, d'un traitement rationnel, pleinement axé sur le développement durable et la préservation d'une portion non négligeable du patrimoine écologique méditerranéen.

Ces espoirs ne peuvent cependant être envisageables et permis qu'à travers le ciblage conséquent, des conditions globales de leur réalisation eu égard aux spécificités qu'offre le territoire algérien.

Indépendamment des actions et programmes qu'impliquent directement les espaces et milieux côtiers, toute la problématique de leurs espérance de développement durable repose en fait et il faut y insister, sur l'insertion effective et opérationnelle de ces actions et programmes, dans les équilibres préalables et incontournables que doit promouvoir, la stratégie nationale d'aménagement du territoire

Cette dimension fondamentale, évidente au plan méthodologique, doit également être mise en exergue pour l'évaluation des efforts et moyens particuliers que nécessite pour le cas algérien, toute politique conséquente de développement durable de ses espaces côtiers

WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of CROATIA

(Contributed by Mr Andrija Randić)

NATIONAL REPORT OF CROATIA

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(I) The coastal part of Croatia is an Adriatic area with features typical of most of the Mediterranean, for its European part in particular. Developed relief, mountain chains very often only ten or one hundred metres away from the coast, and a number of islands (1185) alternate with straight sections of the coast. The coast itself is mostly rocky, more often with gravel detritus than with sandy beaches. Total length of the coast is 5.790 km. The island coast accounts for its bigger part (4,012 km) and the mainland coast for the smaller one (1,778 km)

The climate is characterized by dry and hot summers, mild and rainy winters, sunshine and many sunny days.
The vegetation has Mediterranean and submediterranean features, whereas there are some areas where plain rocky ground prevails.
The most important resources of the coastal area are natural resources (sea, forests, surface and ground waters, and numerous natural complexes protected because of their outstanding qualities and values) and building heritage

The sea alongside the coast is mostly shallow and separated from the open sea by many islands. Most of the sea volume is in the South and in the Central Adriatic (90% of the water mass). The Venice-Trieste-Istria bay is the shallowest part of the Adriatic (2% of the volume) but very important for biological regeneration of the entire Adriatic Sea, and of the Mediterranean as well. The largest part of the sea volume (more than 95%) has retained extremely good quality. The only endangered parts are the aquatorium in vicinity of big harbour towns. Generally, total inflow of fresh water into the Adriatic is rather poor. One of the most distinctive characteristics of the Adriatic is its transparency declining along the coast towards the north. Prevailing sea streams are from the south up the eastern coast, and down the western coast i.e. in a counter clockwise direction. The exchange rate of the sea water mass is slow

Current forest reserves in the coastal area do not have any significant value in terms of exploitation, but they have an incomparably bigger significance in terms of its generally useful functions In view of its characteristics, the existing vegetation consists of a number of different types of grown plants, from high- to low-growing forests, coppice, garrigue, and rocky land

All mainland waters of the Adriatic basin are characterized by hydrogeological features of karst, with poor surface and richer ground hydrography resulting in a general shortage, and irregular and often changing natural distribution of fresh water. The natural characteristics of the Adriatic tributaries and all other surface waters (lakes) are without exception such that they are used as water supplies, that is, they are potential sources of drinking water Surface water courses in the Adriatic basin are used for hydroelectric power. Most of waters flow into the sea through the karst stratum by underground streams with many of them coming up under the sea surface (submarine springs) Ground water streams in the karst are very complex and still not sufficiently investigated so any unforeseen event at the coast, such as damage and the like, can result in far-reaching consequences on drinking water supply several dozens of kilometres from the place of accident. Drinking water is used from surface water courses, ground water courses, permanent sources, and some lakes.

Some parts of the Adriatic coast and the submarine area are protected under the Law on Protection of Nature. The purpose of protection is conservation of particularly valuable natural features of the living world, sea, and the ambient values. In the Adriatic area there are five national parks, one nature park, and two special reserves.

The karst is a specific geomorphologic structure of the coastal belt and its hinterland. Dinaric karst, recorded as a part of the world natural heritage (locus tipicus), is a particularly sensitive system which requires special care in terms of conservation of drinking water resources.

The building heritage covers all civilizations and historical periods. The most important examples of protected building heritage are. historical urban complexes (Dubrovnik, Hvar, Kaštela, Motovun, Pag, Poreč, Pula,..), archeological zones (Brijuni), cathedrals (Šibenik, Trogir, Split, Zadar, Pag, Korčula), and fortresses (Nehaj, Klis, Knin).

(II) According to the census from 1991, there are 1,521,475 inhabitants in the coastal area which is 31,7% of the total population of the Republic of Croatia. The population density is 70 inhabitants/km^2 The highest concentration of inhabitants is in bigger town centres, whereas the least populated areas are the hinterland and the islands. They are hilly and karst areas, rather isolated, socially and economically less developed, and they are typical emigration and depopulation areas

Certain development conditions and previous economic and social movements have determined the basic directions of development of this area, such as:

- industry (electricity generation, production and processing of oil, petrochemical industry, shipbuilding, metal and power industry, paper, wood, and food industries);
- traffic (port activities - loading and reloading - and sea shipping trade);
- tourism;
- power industry and economic infrastructure (railway traffic, port, roads, and municipal infrastructure, water industry, Croatian Post & Telegraph, etc.).

(III) Only 66 islands, of 1,185 altogether, or 5.6%, are inhabited. The population density on these islands ranges from 25 to 200 inhabitants/km^2 The development level of the mainland alongside the coast is not uniform. The heaviest populated areas are around big cities and towns (Pula, Rijeka, Zadar, Šibenik, Split) with a population density of 100-400 inhabitants/km^2 About 1/5 of the coastal part is thinly inhabited (<25 inh./km^2) and undeveloped.

Water courses in the coastal area are clean in their upper part, but moderately or fairly polluted in the lower part. The pollution in the estuaries is particularly heavy. The sea quality for swimming and recreation has been regularly monitored for some ten years and the results show (according to the EC criteria) that, in principal, it satisfies legally prescribed criteria. The air pollution has also been regularly monitored. The most polluted air is in towns with developed industry. In addition to significant damage the forests suffer damage from air pollution, fires caused by human negligence and traffic.

Industrial polluters concentrated at four to five locations have an impact on the building heritage and protected natural areas. A serious problem of the Adriatic area is uncontrolled waste disposal (fly tipping).

The more economically developed and inhabited an area is (heavier population density), the environmental elements (water, air, forests, sea, ground..) are more in danger. This requires certain investigation methods, continuous monitoring, and taking adequate protection measures.

(IV) To date, the Law on Protection of Nature and the Law on Physical Planning and Area Development have protected many buildings and areas. There are 105 natural complexes covering 2,863 km^2 or 65% of the area of all protected complexes and buildings in the Republic of Croatia.

The coastal area has been divided into seven administration regions, each of them subdivided into towns and municipalities.

In implementation of the environmental policy, the basic principle of preventive environmental actions has been satisfactorily carried out by checking the activities planned in the environmental impact assessment process, and in the process of physical planning Following this principle, the Law on Environmental Protection, should also cover other plans and programs, in addition to construction and physical interventions, whose realization might have unfavourable impact on the environment.

Under the current structure of the Croatian Government, several ministries are competent to deal with the environmental protection, inclusive of some institutions at the national level. A State Directorate for Environment has been set up to coordinate and link the activities in the entire territory of the Republic of Croatia, according to all the environmental components. Due to the importance of the Adriatic, there is a special Department for Adriatic within the State Directorate for Environment whose sole task is to take care of the Adriatic area

(V) In addition to legally prescribed measures for environmental protection, there are special protection measures for national parks (5 of them in the coastal area), because these areas have been given the highest protection status and priority. The physical plans for these areas are made by the Parliament of the Republic of Croatia, the highest government authority Moreover, there are specially protected reserves in the sea and in the coastal area respectively, with a special regime of use and exploitation.

(VI) Co-actions in environmental protection and physical planning have been traditional both in the institutional and administrative sense. This close cooperation is also the most effective practical and continuous conjunction of development and environmental protection

Over the last few years integral planning has been introduced as a special instrument for implementation of better development, with a purposeful use of natural resources and values produced

The physical plan of the Republic of Croatia is a basis for implementation of physical planning policy and strategy This is a major document dealing with the environment

and orientation of its development, in which its organization, purpose, and protection are identified. Physical planning is implemented also through the lower level physical plans (regional, local). It is prescribed by law to include the public in the process of making the physical plans to identify the purpose of an area, the conditions for its development and use, and the main factors of environmental protection.

The influence of the public in making decisions on construction of facilities that might have environmental impact is getting stronger every day. Environmental impact assessments have become compulsory. They are evaluated and reviewed by experts and at public hearings in the areas where such facilities are planned

(VII) Nowadays, there are physical plans of all levels and standards for the entire Adriatic (coastal) area; from physical plans of regions and their wider development, through urban plans of residential areas, to detailed plans of residential areas, tourist zones, industrial zones, and zones for different purposes. All these plans are "relatively young" in terms of time; stormy, very often unpredictable and fast development processes resulted in necessary reviews of the plans in order to adjust them to new characteristics and scope of development, in particular, in terms of environmental impact.

Currently, these plans are being reviewed and completed Within this process new methods are used, such as polls about inhabitant attitudes. the use of models, identification of responsibilities of social holders in making decisions on physical planning and environmental protection, and similar actions.

Current financial instruments in environmental protection have been developed individually within the resource management sector policies. The consequence of such an approach are big differences and lack of uniformity in making them theoretically organized and relevant, big differences in the level of their development, enforcement and effects. Available financial instruments in environmental protection can be divided in the following groups:

- compensation for environment pollution (payment for water protection);
- user compensation (payment for use of water, for exploitation of mineral raw materials, for reassignment of agricultural land, and the like),
- penalties for environment degradation and violation of the law;
- incentive funds (tax exemption, customs release);
- other resources (budget funds)

(VIII) The environment as a whole, its special components (area, air, land, water and sea), and renewable and non-renewable resources are a basis for any development, therefore the protection, improvement, and management of the environment have been included in the general development policy (both for the coastal area and for the Republic of Croatia) through national environmental strategy

The strategy is implemented by short- and medium-term Action Programs.
The Action Programs cover the environmental elements and the activities for each area they address.

The conditions for the strategy implementation are the following

- political and social consensus on the need, and method used to implement the environmental improvement,
- openness to the public and participation of public in decision-making, education;
- efficient organization of administrative bodies and services at all levels;
- a system of up-to-date legislation based on general regulations and common principles governing the obligations to, and the behaviour in the environment on a long-term basis;
- a sophisticated information system defined in view of geography and territory,
- organization of expert and scientific potentials,
- introduction of economic and market principles in environmental protection,
- introduction and implementation of environmental protection and evaluation based on the "environment user pays" and "polluter pays" principles;
- development of integral plans of physical planning (area development) and environment management;
- establishment and implementation of continuous monitoring in the environment, expert and administrative supervision and inspection of implementation;
- active participation in all forms of international cooperation including the provision of necessary funds from international sources

(IX) Systematic implementation of physical plans, sea, air and water monitoring, identification of starting points for international cooperation, openness to the public and mass communication, and other forms of continuous observance of the environmental issues. Regular monitoring of water, sea quality for swimming and recreation, and air quality is carried out on the entire coastal area of the Republic of Croatia.

(X) Over the last few years public opinion, non-governmental organizations, and committed journalists are more important every day in popularizing and developing a public sensitivity to environmental issues Non-governmental organizations (ecological groups) made the general public interested in the environment - from the level of elementary schools to representing the initiatives to expert audience They are becoming a serious partner in discussions about the future development of the Republic of Croatia.

(XI) By making individual plans, programs, and projects, the prerequisites for their enforcement have been created - with a goal to protecting natural resources. With this aim in view, the completion of the "Environment Management Plan of the Cres and Lošinj Archipelago" allowed establishment of a management agency for implementation of basic goals and propositions of the plan

In order to maintain the cleanliness of the Adriatic Sea, and as a result of the national Contingency Plan in case of sea pollution, three eco-vessels have been procured for the North Adriatic and two eco-vessels for the South Adriatic. A number of waste water treatment plants (in industry, tourist resorts, residential areas, etc.) have been built in order to have the sea quality adequate for swimming and recreation

Due to bad economic effects in the previous year, several extremely serious polluters, such as the Coke Plant in Bakar. Light Metal Factory and Ferro-alloy Factory in Šibenik have been closed down and decommissioned. which is a considerable contribution to improvement of the environment in the Adriatic area of Croatia.

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National Report of CYPRUS

(Contributed by Mr Nicos Georgiades and Mr Michael Kyriakides)

NATIONAL REPORT OF CYPRUS

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INTRODUCTION

Cyprus (Map 1) is the third largest island in the Mediterranean, after Sicily and Sardinia, with an area of 9251 sq.km. Since 1974, approximately 37% of the country's territory has been occupied by Turkish troops following the invasion of the island by Turkey. This report refers only to the area under Government control.

THE COASTAL AREA

General Characteristics

History and the environment have provided the essential attributes of the country's coastal area, which is a mixture of man-made, natural and cultural features (Map 2).

The coastal area covers 23% of the total area of the country, coastal population density is 17.5 persons/ha., and 40% of the population lives in the coastal zone.

The total length of the coastline of the country is 772 km , out of which 404 km. in the occupied area, 72 km. within the Sovereign British Areas and 296 km. in the Government-controlled area.

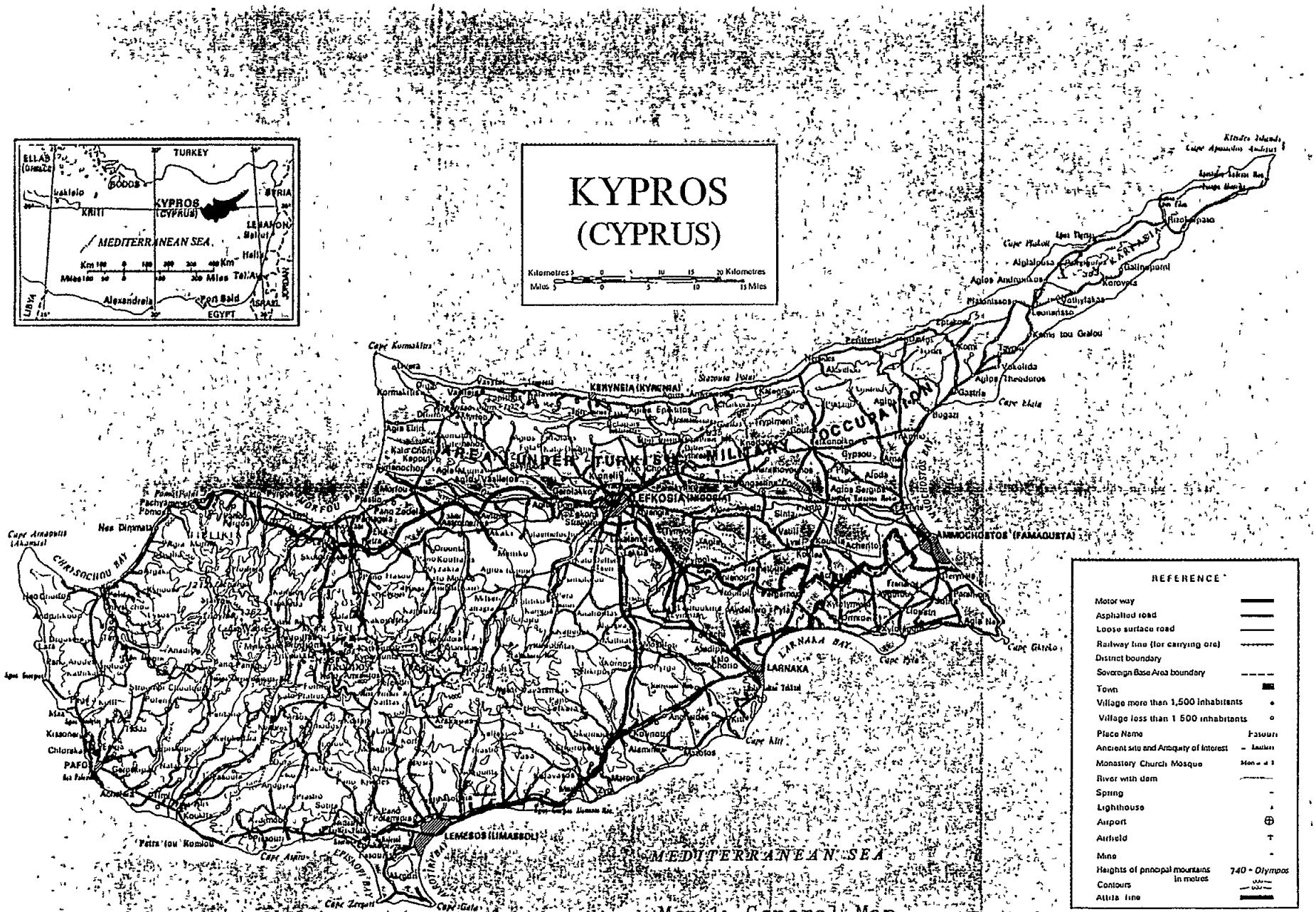
In general, the Cyprus coastline is indented and rocky (54%) with sandy beaches in numerous coves (46%). The coastal zone is characterized by diverse wildlife, large and small beaches, stretches of countryside, sea cliffs, capes, coves and promontories, sand dune systems, banks of shingle, and marine and terrestrial areas of primary ecological and scientific importance.

About 63% of the north- western part of the country's coastline is rocky. It includes mostly undeveloped Tilliria, the pristine Akamas Peninsula and Khrysokhou Bay recently coming under development. Loggerhead and Green turtle beaches, unspoilt coasts, islands and sea caves can be found in various parts of the area.

The south- western part's proportion of beach to rocky coasts is roughly equal, and it includes the rapidly developing Pafos tourist and urban centre as well as extensive stretches with sea caves, rocky islands, white cliffs, dunes and the Akrotiri Salt Lake.

The southern (central) part includes the highly developed Limassol and Larnaka areas, of which 57% is beach, some unspoilt cliff coast and the Larnaka Salt Lake

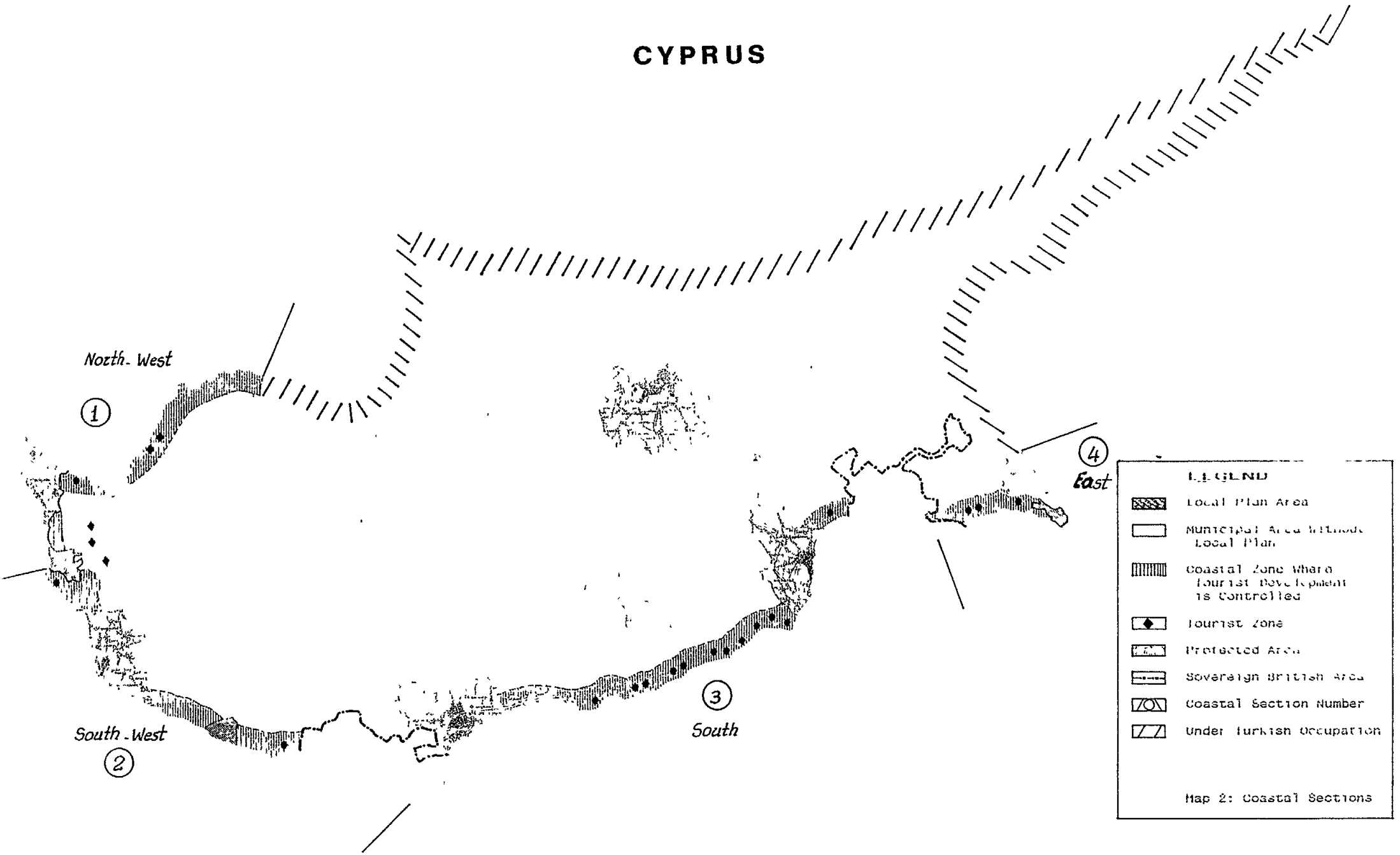
The eastern part covers the highly developed tourist centres of Agia Napa and Protaras, only 23% of its coast consisting of beach It includes some very interesting sea caves.



Map 1: General Map

Prepared by the Department of Lands and Surveys, Cyprus.

CYPRUS


North - West
1
South - West
2
3
South
4
East
LEGEND
Local Plan Area
Municipal Area without Local Plan
Coastal Zone where Tourist Development is Controlled
Tourist Zone
Protected Area
Sovereign British Area
Coastal Section Number
Under Turkish Occupation
Map 2: Coastal Sections

Natural Attributes

Cyprus hosts a rich and varied fauna which also features several endemic animal species. There are 16 land mammalian species, 26 species of amphibians and reptiles, about 357 species of birds and an unknown number of insects. More than 250 different species of fish are present in the waters surrounding Cyprus as well as crabs and sponges. The country is the crossing point for millions of birds during Autumn and Spring as it lies on two major migratory bird routes between North Europe and Africa

As far as flora is concerned, it comprises app. 1.800 species and subspecies of flowering plants, of which 127 are endemic, many of them rare or very rare, their range being very limited, especially on the coastline.

Coastal ecosystems provide the habitats for such critically important species as the sea grass beds and turtles. It has been estimated that the coastal area protected in one way or another covers approximately 14 3% of its totality

The Akamas Peninsula, covering an area of 250 sq km., has remained mostly untouched by development, supporting a natural resource base comprising of rich flora and fauna and their associated habitats, beautiful beaches and landscapes and interesting historical, archaeological and cultural features.

The beaches of Akamas and north east Polis are among the few remaining breeding areas for both the Loggerhead the Green turtle, under threat of disappearing from the Mediterranean. Sightings of the rare Mediterranean monk seal have been reported in the area in past years.

The two coastal wetlands of the Akrotiri (saltwater) Lake and Phasouri (freshwater) Marsh (app.. 2000 ha.) and of the Larnaca Salt Lake (1100 ha.) are of considerable importance to migratory birds, including flamingoes.

State Forests are located adjacent to the coast, along a coastal stretch of 22 km. (Akamas coast, Aphrodite's rock, between Cape Zevgari to Cape Gata, near Cape Pyla and Cape Greco).

Maquis and/or garigue complexes, rich in endemic species, predominate in non-cultivated, poorer and drier coastal lowlands and a length of coast of app . 72 Km. is characterized by undisturbed scrub land

Cultural Attributes

The historical and cultural heritage of Cyprus is exceptionally rich, dating back at least 8.000 years and many unique cultural resources are located in the coastal area such as ancient settlements, temples, tombs and theatres, fortifications and harbours, basilicas, churches, monasteries, castles, mosques and fortifications, as well as neoclassical urban houses and fine examples of rural vernacular architecture.

Economic Activities

Cyprus has experienced a period of rapid economic growth and since 1975. GDP has increased by over 6% per annum in real terms which, owing to the very low population increase (rate of 1%/ annum over the same period), has led to real income growth and rising standards of living which have brought about considerable changes in lifestyles

Along the island's coastline, natural and cultural features are intermingled with such activities as aquaculture, fisheries, fishing shelters, agricultural activities, residential areas, major tourist and entertainment areas, inland and sea-based recreation, marinas, roads, ports and container handling, airports, industry (cement, oil refining), sewage treatment plants, coastal protection structures, energy generating plants and abandoned coastal quarries.

The estimated 1994 population of 639.000 is characterized by a high rate of urbanization, which rose from about 44% in 1974 to 68% in 1992. A large part of this urban growth over the last decade has mostly concentrated along the coast, the main southern coastal cities having grown by an average of 2,7% annually. The latter are continuing to grow, mainly at the expense of the rural settlements, especially the remoter ones, which find it increasingly difficult to sustain their past levels of population

Central to this growth has been tourism whose contribution to GNP steadily increased to a current level of 21%. According to various scenarios tourist arrivals are forecasted to rise from 2 million in 1995 to between 3- 3,5 million by the year 2005 93% of tourist bed capacity is located along the coast.

Industrial pollution problems are present in a number of hot spots, but they are less significant than the pressures from urban and tourism development Although the bulk of coastal manufacturing enterprises is located in the Limassol district, it should be pointed out that there is no heavy industry in the coastal zone, apart from 2 cement factories and 2 conventional power stations. Most liquid effluent (app. 64%) is disposed of in the sea but they basically involve effluent from a number of wineries within the urban area of Limassol.

Administrative Structures

There are no special purpose administrative structures dealing exclusively with the planning and management of the coastal area, and the activities of a large number of government agencies, quasi- governmental organizations, municipalities, improvement boards and village commissions with a variety of powers and responsibilities impinge upon the coastal area.

Public Participation

Public participation in physical planning and environmental management processes is recent and still evolving, as, for example, through the establishment of advisory joint boards to consider local plans, the representation of the private sector in the Planning Board and of local government and NGOs in the Environment Council. However, policies in the 1990s are moving towards a stronger participatory system, as evidenced by the government's agenda on the issue, the high pluralism of the political and decision-making system, the activities of local councils which are elected, representative and accountable, the active intervention of a large number of non-governmental organizations and changes in peoples' values and

priorities. Currently it is almost impossible to secure the acceptance and implementation of policies, plans and programmes without the cooperation and direct involvement of the affected local communities.

PROBLEMS OF THE COASTAL AREA

Introduction

The coastal area of Cyprus is under pressure from economic development particularly tourism, recreation, urban and infrastructural development and, to a lesser extent, agricultural and industrial development. Indeed, the rapid socio- economic growth of Cyprus, especially in the 1980s, beside its desired effects, has also caused strains on the natural fabric of the coastal area.

Conflicting and competitive demands for coastal space have also become one of the country's primary environmental problems and even other problems have come to be seen as a direct reflection of pressure on scarce land resources in the areas adjoining the coast.

Urban and Tourism Expansion

The most serious coastal planning problems today relate to the sudden expansion of the main coastal urban centres of Limassol, Larnaka and Pafos and have mostly been caused by the type and speed of development. Out of a coastal stretch of 181 km., in 1973, development along the coastal zone was only 22 km urban, 9 km suburban/tourist and 150km. pristine. In 1991 it changed to 31 km. urban, 48 km. suburban/tourist and only 102 km. pristine.

Massive construction of hotels and tourist accommodations has transformed some of the largely pristine coastal areas into ribbon built tourist development zones. Coastal villages have grown practically overnight into major tourist centres, notably Ayia Napa and Paralimni in the south-east coast of the island.

Negative coastal impacts have, inter alia, taken the form of loss of vistas and reduction of public access to the beach as stretches of the coastline in the denser urban and tourist areas have been blocked over by buildings located very close to the water, also contributing to the deterioration of the aesthetic quality of the coastal environment.

Another negative impact that could be directly attributed to tourism and second homes has been that, mostly due to the shortage of suitable sandy beaches, many small-scale groynes (app. 110) and breakwaters (app. 50) have been constructed haphazardly and, many of them, illegally, without due consideration to their longer- term environmental impacts.

The most important manifestations from such rapid land use changes arising from coastal transformation have been the shrinking of agricultural land in favour of residential land; fragmented settlements and isolated buildings in the countryside; unconsolidated growth; a spatial pattern of land use in the fringe areas that is heterogeneous and unstable; rising land values; labour shortages; and habitat reductions.

Some of the other problems identified, mostly due to a synergism of causes, have also been the following:

Water Resources

As water resources are scarce, average annual precipitation being about 500mm., the demand for water is causing concern, as well as pressures on its quality, in some areas, from effluent and agrochemicals. In the coastal plain, aquifers nitrate concentrations in some parts have increased due to agricultural and urban development The principal groundwater quality problem is salinity due to over pumping.

Air

The quality of the air, although generally good by European and other standards, has to be safeguarded, particularly in light of the spiraling number of motor vehicles and the presence of localized hot spots of industrial pollution.

Marine Pollution

The marine environment of Cyprus is vulnerable to marine pollution incidents owing to the country's position relative to oil transport routes. There are no industrial effluent discharged into the sea apart from a number of wineries, the affected area restricted between Limassol's two harbours. Pollutants from non-point sources (agriculture, urban areas) occasionally cause problems of a temporary nature.

The greatest part of the marine waters of Cyprus is of very high quality and sea pollution problems are localized within the urban fronts of the three main coastal towns. From data systematically collected under MEDPOL, a general trend of decreasing beach pollution by oil and pelagic tar has been observed since 1985, no pollution from heavy metals has been identified, most of the values of concentrations of halogenated hydrocarbons in fish and sediment are lower than those found in other Mediterranean areas, whereas, as far as microbial pollution is concerned, the quality of coastal waters in practically all monitoring stations conforms with the WHO/UNEP criteria.

Wildlife Habitats

Wildlife habitats, the great variety of which has been the main reason for the high endemism characterizing species in Cyprus are subjected to pressures by urban, tourism development and public works, whilst sea grass beds are threatened by sedimentation caused by construction activities, pollution and illegal trawling.

Noise

Noise and congestion from intensive development pose growing environmental problems in heavily built-up coastal areas, the principal cause being traffic of various means and noise from installations, machinery and activities.

Waste

The coastal Districts account for app 67% of total solid waste generation. The annual per capital production of solid waste is estimated at 468 kg./year for residential areas and 670 kg./year for tourist areas (including commercial uses, hotels and restaurants).

Erosion

Eroding shorelines are mostly due to past large-scale sand mining, cutting off of sediment discharge due to the construction of dams, other man-made causes and possibly other natural causes. All along the coast app. 25 km. of coastline have shown a recession of more than 0.5m/yr between 1920 and 1970

RESPONSE

The overriding challenge the country is now facing for sustainable coastal area management is to achieve a convergence between development objectives and environmental considerations. The response has been substantial and there is still time to avoid serious, extensive and irreversible losses as, despite its partial degradation, the quality of the coastal environment in Cyprus remains of very good quality on the whole, particularly when compared with other parts of the Mediterranean However, rapid economic development and urban and tourism pressures are posing a serious threat to natural and cultural resources.

Cyprus has endorsed the principles of sustainable development and has undertaken a process to integrate environmental considerations with those of its economic and social development policies, and to ameliorate those aspects of development policy that may run contrary to the principles of sustainable development. In view of the stage the socio-economic development of the country has reached, development objectives are pursued in conjunction with the preservation of the environment and the development effort is gradually readjusted, so as to be implemented in line with the concept of sustainable development.

The major actions taken so far as they directly or indirectly relate to the coastal area are summarized below:

Physical Planning

The physical planning framework, responsibility for which is under the Ministry of Interior, includes the Minister, the Planning Board, the Department of Town Planning and Housing and local councils.

In 1990, the Town and Country Planning Law was eventually implemented in order to ensure that physical development would be at pace with social and economic development. Among others, Local Plans were prepared for the three major coastal urban centres as well as a Statement of Policy for the rest of the country's mostly rural areas The process for the preparation of additional Local Plans for areas where rapid development takes place is currently under way. In these Plans, special emphasis has been placed on the need for protecting amenities and general welfare, as well as on the protection of the quality of the environment and of the architectural and cultural heritage. Preservation Orders prohibiting

development and alterations, powers of compulsory acquisition and for the declaration of White Zones for the freezing of development to existing uses, and tree protection orders, are some of the tools included in the legislation Through the Policy Statement for the Countryside areas surrounding archaeological sites, protected landscapes, coasts and areas for the protection of nature and areas of outstanding natural beauty have also been declared.

The main objectives of physical planning are to slow down coastal development, enhance the quality of existing development and protect the natural and cultural heritage. The general thrust is to prevent any further significant increase in the built-up areas, especially in areas of high archaeological, agricultural, ecological and landscape value.

Tourism Policy

The tourism industry of Cyprus has come to a cross- roads. The industry is a major factor of economic well-being and it has to be sustained, yet it has been a major factor in environmental degradation and has to be stringently controlled. In 1989, a moratorium on new tourist developments in all coastal areas was introduced, in order to allow for the adoption of a new National Tourism Development Policy This new policy acknowledged the need for the protection of the environment. Strict controls were adopted for coastal tourism development at a distance of 3 km. from the shore, with a goal to discourage and slow down rates of development. Alternative forms of more environment friendly tourism were also encouraged. The results so far have been mixed as the construction of tourist apartments, second residences and shopping centres in tourist development areas continued unabated, whereas licenses issued prior to the moratorium continued to be utilized. In 1995 the policy was further refined in order to increase controls in the coastal zone and further diversify the tourism product (agrotourism, special purposes tourism, golf and nautical tourism).

Environmental Management

The overall responsibility for environmental issues, excluding physical planning issues, rests with the Minister of Agriculture, Natural Resources and Environment, who is being assisted by an inter-ministerial Environment Committee and a consultative Environment Council, which includes the business world, NGOs, etc. The Environment Service co-ordinates programmes for the protection of the environment, advises on environmental policy formulation, ensures its implementation and handles the environmental impact assessment process.

The environmental management framework is interlinked and coordinated with the physical as well as with the tourism planning frameworks.

Implementation and enforcement of sectoral aspects of the environment is carried out in accordance with specific laws and regulations by a number of Ministries, Departments and Services in the subject-matter areas of their respective responsibility. All main line Ministries with executive responsibilities on environmental issues participate in the Environment Committee and the Environment Council.

Protection of the Sea and Coastal Ecosystems

The Foreshore Protection Law covers the foreshore (all lands within 100 yards of the high water mark), controlling activities, public access and the use of the foreshore for the provision of services and facilities to bathers.

Under the Game and Wild Birds Law permanent and temporary game reserves have been established, around the two Salt Lakes, for example.

The state forests are very well protected and managed under the Forests Law, and successful reforestation efforts are being undertaken. Coastal National Forest Parks have been declared at the Liopetri River (89 ha) and Cape Greco (325 ha) whereas the Akamas State Forest (7.140 ha.) is being managed as a National Forest Park, although not declared as such.

The Compulsory Acquisition Law allows for the acquisition of land, with fair compensation, for public benefit purposes and it has been used to acquire land on the periphery of forests or enclaves in them which are either ecologically sensitive or indispensable for sustainable forest management.

The Akamas region has been accorded high priority for protection and environmentally sound management. The most sensitive part of the area has in the meantime been designated as a White Zone, with a ban on development. A Conservation Management Plan financed under METAP was recently completed, aiming at the conservation and management of crucial ecosystems, sites, cultural and landscape features, and in the creation of a sustainable future for the area's village population.

Successful measures have been taken since 1981 to control operations of commercial fishing. Sea grass beds are protected from trawling operations under the Fisheries Law which prohibits trawling at less than 30 fathoms. The same law also protects a number of marine and riverine species and provides for the designation of marine and coastal protected areas.

Management Plans as well as a monitoring system have been prepared for the two Salt Lakes.

The Lara Beach turtle protection and management area includes a nesting beach and a hatchery. Access is controlled in the summer and at night, at nesting, incubation and hatching. Fishing, sailing, driving on the foreshore are also controlled The programme is run by the Fisheries Department and is partly financed by the EU's MEDSPA. The hatchery releases between 6.000 to 7.000 hatchlings a year, adult females being tagged and recorded. The protected area where regulations apply extends along 9km of the coast 20 m. into the sea and 90 m. inland.

Water Resources

A number of major water development projects have been implemented in order to increase the availability of water. Particular emphasis has been given to the construction of dams, mostly in the mountainous area in the south and west, and the conveyance of water to other parts of the island. The Southern Conveyor Project is a major trans-basin diversion that provides the facilities to balance water supply and demand throughout the southern

coastal part of Cyprus and optimize the conjunctive use of surface and groundwater throughout the region.

A desalination plant, the first of its kind in Cyprus, is under construction near Dhekelia.

Waste Management

Urban population served by central sewerage systems is 17% and within the next 5 years it will increase to 31%. Rural population served by a sewerage system is only 2% and is expected to increase to 15% within the next 5 years. Limassol, the main coastal town, is served by a central sewerage system and a tertiary level treatment plant. Similar systems are under construction for the coastal town of Larnaca and are to begin soon for the important tourist centres of Pafos, Paralimni and Agia Napa

Practically all hotels, especially the new ones, in the coastal area have their own biological sewage treatment plant, to be used until the operation of the central sewerage systems they are obliged to connect with. Hotels use the safely treated effluent from their plants for watering lawns, trees and shrubs and other hotel amenity areas.

As regards rural areas, most are served by traditional septic tanks/absorption pits but in a number of villages, central sewerage systems have been constructed. A comprehensive Rural Sanitation Study was also completed, to holistically address the countryside problems and suggest methods for rectifying them, by determining the most appropriate methods for sewage waste disposal in rural areas

At full implementation, the programme for centralized sewerage schemes and sewage treatment plants will produce treated effluent of high quality and the Government's policy is to use such effluent to irrigate agricultural crops, green spaces and sports grounds Successful experimental work on the issue has been carried out. Standards for treated domestic sewage effluent for use in irrigation, accompanied by a relevant code of conduct, have recently been finalized.

Municipal solid waste is managed by the municipalities, which are responsible for the collection, transport and disposal of waste in sanitary landfills A study to address the domestic solid waste problem, with a view to volume reduction and recycling has been commissioned and is under finalization.

Pollution

Under the Fisheries Regulations, standards have been adopted for substances in effluents and the environmental quality of recipient sea waters. There are also prohibitions on the disposal of lubricating and other oils and in the use of organotin based anti-fouling paints in the marine environment. In order to minimize local effects, aquaculture is now carried out "off-shore".

Under the Law for Water Pollution Control, industrial effluent standards are set, thus directly encouraging the minimization of the generation of waste, as well a reuse, recycling and treatment. The final drafts were prepared for water quality standards and an order for the protection of the underground water resources from pollution was recently issued.

Pesticides are being registered according to the provisions of a comprehensive Pesticides Law and relevant regulations, which provide for the control of the import, manufacture, marketing, quality, labeling, toxicity classification, use and storage of pesticides, have been drawn up.

The Dangerous Substances Law imposes requirements on the import, manufacturing, classification, labeling/ packaging, use, storage, transport and supply of dangerous substances and the supplying of required information.

To address problems of sea and beach pollution, Cyprus has introduced measures in compliance with MARPOL. An anti-pollution unit is in place, a national oil spill Contingency Plan has been implemented and regional oil combating arrangements have been established with Egypt and Israel.

Monitoring of the pollution of the marine environment started in 1976, within the framework of the Mediterranean Action Plan, and by 1984 it evolved into a full-scale national pollution monitoring programme. It involves the monitoring of land-based sources, of the concentrations of dissolved and dispersed petroleum hydrocarbons as well as of DDT, PCB's and other polychlorinated hydrocarbons in sea water, heavy metals in marine organisms, pesticides in sediments and macrobiotic parameters, i.e. faecal coliforms.

Groundwater is also monitored and a programme for the preparation of hydrochemical charts has been initiated.

Shoreline Protection

There is currently a moratorium on breakwater construction, while a study financed under MEDSPA has recently been completed in order to address coastal erosion problems. The study has made an assessment of current coastal problems and coastal dynamics and has built a body of knowledge for the design of effective and environmentally sustainable coastal protection and improvement measures, and covered methods to protect the coastline and improve the quality of the beach where necessary.

Cultural Preservation

The protection of archaeological sites has long been a priority and the Antiquities Act which protects the architectural heritage and historic monuments has been in place since the 1960s, and its is effectively enforced. A significant proportion of sites in the coastal area are identified as Ancient Monuments and they include a large number of valuable sites that are privately owned. Preservation orders under the Town and Country Planning Law are also being used to protect buildings or areas of architectural, social or historical interest and transferable development rights and fiscal incentives are being used to preserve listed buildings.

International Conventions

Cyprus has ratified all major environmental conventions with direct or indirect relevance to coastal areas such as the Barcelona Convention and its Protocols, the Convention on the Conservation of the European Wildlife and Natural Habitats and the Global Convention on the Control of Transboundary Movement of Hazardous Waste and their

Disposal. A ratification law for the Biological Diversity Convention was recently approved by Parliament.

Environmental Impact Assessment

An Integrated System for Environmental Impact Assessment was approved by the Council of Ministers in 1991, based on the relevant European Union Directive and UNEP's methodology. There is no specific legislation for EIAs but relevant provisions have been included in the draft of the Environmental Framework Law Projects for which the procedure is applicable include tourist installations, aquaculture projects, ports, marinas, fishing shelters and breakwaters, wastewater treatment plants, solid and liquid disposal areas, dams, major roads, quarries, industrial areas, airports, etc.

THE FUTURE

In the case of Cyprus, the challenge of sustainable coastal area management is to secure, in an integrated and coordinated manner, a reduction in the overall burden on the environment by development activities, restrict the spread of development in new areas, improve development in existing developed areas and protect and manage ecosystems, habitats, species and cultural resources.

In this respect, and in addition to the action already taken, the following are expected to become even more important elements in this effort:

Action Plan for the Protection of the Environment

An Environmental Review and Action Plan for Cyprus was prepared by the World Bank in 1993, whereas, in 1995, a comprehensive report was prepared by an interministerial committee on putting the country's environmental policy and legislation on a par with those of the European Union. As a result of the above, as well as of the outcomes of the Barbados and Tunis Conferences on the Sustainable Development of Small Island States and of Mediterranean Countries, respectively, an Action Plan for the Protection of the Environment was approved by the Council of Ministers in March 1996

The Plan deals with horizontal integration issues such a Fiscal Instruments, Information, Research and Participation and with subject- matter issues in the fields of General Environmental Policy, Water Protection and Management, Waste Management, Radiation, Atmosphere, Noise, Chemicals, Industrial Accidents and Biotechnology and Protection of Nature and Wildlife

The implementation of the Plan's measures is expected to secure a much more rational and environmentally sensitive policy for the coastal areas, so as to ensure their sustainable development.

Land Use Planning

Conflicting and competitive demands for space and scarce land resources are a primary environmental constraint and cause for concern, particularly in the areas adjoining the coast. The need for strict strategic control of the location and character of all future

development is gradually addressed by legislation on town and country planing, particularly in those parts of the country where valuable built heritage is concentrated, and where areas of archaeological, agricultural, ecological and landscape value are found.

Land use planning is therefore seen as a major instrument for addressing environment and development issues, preserving important areas, improving the quality of life, reducing traffic impacts, constraining and consolidating development and improving the quality of existing developed areas.

Tourism Policy

As pointed out in the recent "Europe's Environment Report", the key elements for sustainable tourism are a longer-term perspective on policy- making, recognition of the interdependence of economic and environmental systems and a concern with the biological limits within which human activities need to stay In order to achieve all these, tourism policy is aimed to balance social, cultural and environmental elements with economic parameters and tourism satisfaction. It further needs to ensure that the development of tourism is carefully planned, particularly in relation to compatible land uses, water management, coastal zone management and the development of parks and protected areas and, like all forms of development, that it is be carefully integrated within existing cultural and environmental constraints and opportunities.

Bill on a Framework Law on the Environment

The draft of a comprehensive Environmental Framework Law is now under finalization, partly covered by FAO assistance, covering the institutional and administrative framework for environmental planning; the principles under which sectoral legislation would be implemented in an integrated way; land pollution and hazardous waste management, environmental fiscal instruments; environmental impact assessment; the protection and management of nature, including wildlife habitats and species; the establishment and management of protected areas; civil liability; environmental compensation schemes; compensation for damage to certain wild plants and animals; implementation of the polluter-pays principle; emergency powers to take immediate action or ask for an injunction to stop activities detrimental to the environment, etc.

Environmental Fiscal Instruments

The relevant study on the application of economic instruments for environmental management was financed under METAP, its principal objectives being to support the implementation of sound land use policies and coastal zone management practices for sustainable development and to assist in the introduction of such instruments in the overall environmental management process.

Sixteen economic instruments were identified and a short list of potential ones was analyzed (user charges; pricing for water resource management; environmental development charge; transferable development rights; development completion bonds; establishment of an Environment Fund.

Integration and Coordination

Policies and implementation affecting or impacting upon the coastal area, are handled by diverse national agencies and local government with a variety of task environments and clientele. Thus, the basic considerations for sustainable coastal management policies aim to strategically mediate between competing and conflicting land uses and the scarce land resources available; ensure a considerable degree of inter-sectoral coordination; assist in the clearer definition of the administrative responsibilities and roles of every agency, and establish linkages so that policies are properly integrated, common purposes are established, a non-excessively hierarchical systems approach is achieved and an effective mechanism for sharing information is established.

Management of Areas

Location-specific norms, standards and management plans are gradually prepared for the protection and sustainable management of fragile lands, soils, endemic species, crucial ecosystems and cultural heritage.

Monitoring

A system for monitoring performance and enforcement has been decided upon, including an integrated system of environmental information, monitoring and evaluation, and performance indicators.

Enforcement

Enforcement of measures and legislation is always the weak link in the chain. Efforts are made to enforce licensing requirements and streamline enforcement processes; ensure public access to environmental information, enhance pubic understanding of environmental issues; secure legal and administrative implementability, and improve institutional competence.

REFERENCES

This paper has used information contained in a number of reports and papers, particularly the National Reports of the Republic of Cyprus to UNCED (Ministry of Agriculture, Natural Resources and Environment, 1992), and to HABITAT II (Ministry of Interior, 1996), the reports prepared for the Coastal Zone Management for Cyprus Study (Ministry of Communications and Works and Delft Hydraulics, 1993- 1995), the Environmental Review and Action Plan for Cyprus (World Bank, 1993), the Environmental Fiscal Instruments Study for Cyprus (Ministry of Finance and Environmental Resources Limited, 1993). A number of issue- specific papers by the Departments of Town Planning and Housing, the Fisheries Department, the Department of Forests, and the Environment Service, have also been utilized

WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of EGYPT

(Contributed by Dr Mohamed A. Fawzi)

NATIONAL REPORT OF EGYPT

(Contributed by Dr Mohamed A. Fawzi)

The coastal areas and marine resources of Egypt are currently undergoing rapid deterioration due to uncontrolled and increasing human pressure on the coastal areas, resulting in improper use of the Coastal zones, marine pollution and over-exploitation of coastal areas . Such deterioration in the coastal areas constitutes a serious threat not only to public health; but also to living and non-living resources Accordingly, sustainable development and sound management of the coastal zones of Egypt in the last few years have become indispensable.

However, our understanding of the concept of sustainable development is " meeting the needs of the present without compromising the ability of future generations to meet their own needs", bearing in mind that all environmental issues are connected with social and economic activities and the well-being of human communities.

This paper aims to summarize actions taken towards efficient Coastal Zone Management in Egypt from the Egyptian perspective

1. INTRODUCTION

The Government of Egypt has early recognized that the economic development and welfare of the Egyptian population are closely linked to the sound management of its natural resources and environment Accordingly, it was acknowledged that the preparation of a national environmental action plan, development of effective environmental legislation and establishing a National Environmental Institution capable of implementing the action plan and enforcing the legislation, constitute the corner stones towards securing sustainable development.

Since Egypt is in the middle of its economic reform stage, the policy is to encourage all economic development sectors, to take into consideration that the objective of development should include in addition to improved health and environmental quality, proper preservation and sound management of natural resources.

It is intended in this paper to illustrate the Egyptian Environmental Strategy with respect to Integrated Coastal Zone Management activities within the concept of sustainable development.

2. NATIONAL ENVIRONMENTAL ACTION PLAN

Since Environmental management is complex and multi-sectoral in nature, it was recognized that the preparation of a National Environmental Action Plan should involve sectional ministries and research institutions as well as non- governmental organizations in a truly combined national effort towards improved environmental management in Egypt.

In May 1992, the Government of Egypt (GOE), in cooperation with the World Bank, presented its National Environmental Action Plan in an international donor conference in Cairo.

2.1 Main coastal & Marine uses

Users interest in the coastal zones in Egypt, as identified in the action plan, have been classified as follows:

a) Fishery & Agriculture

Fig. 1 illustrates fish landings from the Mediterranean (Annex 1), Red sea and Gulf of Suez during the period 1981 to 1990. It could be easily seen that the Marine fisheries which contribute relatively little (approx. 20-25%) to the overall fisheries in Egypt, have shown an increase in the total catch in the last years The catches for the Red Sea governorate amounted 6700 tones (1990) of the overall fisheries in Egypt which was estimated at about 300 000 tons the same year.

b) Industry & transport_

Fig. 2 shows that the Mediterranean coast in Alexandria which was found to hold a large complex of industries that includes paper industry, oil refineries, cement industry and power plants is the main industrial area.

However, along the Red sea industries are located in some sites in Hurghada, Safaga and Quseir, but generally these regions are sparsely developed.

On the other hand, oil off-shore activities are rapidly increasing on both sides of the Gulf of Suez. It was also recognized that the Red Sea will experience more off-shore activities especially in deep waters Fig.3 Shows the main oil off-shore activities

It was also found that the increased density of traffic, specially of large crude oil tankers coming from the south via the Red Sea and Gulf of Suez constitute the main source of pollution. According to statistics of ship accidents in the Suez Canal and the Red sea, it was found that most are due to human errors and always result in the pollution of beaches and destruction of coral reefs.

c) Tourism & Recreation

Tourism in the Red sea is a flourishing industry with ever increasing capacity, as the Red sea is characterized by fascinating nature and climatic conditions. It is estimated that the Red sea coast and the Gulf of Aqaba will attract over one million tourists during the next few years.

However, it was clear that uncontrolled tourism development could lead to a serious undermining of its own existence in the long run by exceeding the carrying capacity of the touristic areas which depends heavily on the natural resources as an attractive and clean environment.

The National Tourism Priority Action Plan designated 20 different zones for tourism development among which four zones are on the Red sea coast.(see fig.4)

d) Nature preservation

According to the National Law no 102 issued in 1993 concerned with the development and management of natural protectorates, Egypt has 16 areas throughout Egypt which have met the necessary criteria and have been set aside as natural protectorates or National Parks, among which four of them lie along the Red sea coast (see map fig. 5). However, further comprehensive survey for biological resources is needed

The Action Plan has also considered, in detail all physical impacts on the coastal environment including erosion and sedimentation, sea level rise, landscape and coral reefs

The most important problem was found to be the land-filling of the sea which always lead to irreversible destruction to the inter-tidal habitats of the coast, and affects the coastal hydrodynamics process.

2.2 Recommended strategies towards sustainable development of the coastal zones

The general strategy proposed by the Egyptian Environmental Action Plan has recommended a strategic ecosystem approach, as a basis for project design and the priority of actions. The conceptual framework of this ecosystem approach is .

- Prevention of problems (avoid "end of pipe" solutions).
- Problem oriented approach (not limited by administrative/sectional borders).
- Encounter the sources creating the problems
- Long term planning horizons (longer than the economic horizon).
- Environmental Impact Assessment - strategy as basis for planning (alternative solutions and consequences)
- Use of ecological models (holistic and focus on processes/feedback loops).
- Development within environmental sustainability

It was also recognized that the following actions and activities are urgently needed:-

- Marine and coastal zone policy and restructuring of legislative and institutional framework.
- Coastal zone management plan for sensitive areas
- Development of a National Coastal Zone Management Plan
- Establishment of a cross-sectional steering committee under the authority of the EEAA to carry out the CZM process.
- Revision of the National Oil Spill Contingency Plan.

Finally the plan concludes with comprehensive investment programs required for implementation, divided into three stages, each lasting five years.

3. LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

Recognizing the importance of having effective Environmental law, the Egyptian People's Assembly (THE PARLIAMENT) in January 1994 approved the first Egyptian comprehensive Environmental law no 4 (1994)

The law, which is considered as a complimentary law to existing legislation, comprises the following chapters :

a) Environmental Management, which incorporates

- Establishment of a powerful National Environmental Institution with new functions and responsibilities.
- Establishment of an Environment and Development fund whose resources are mainly; fines, grants and donations from national and international sources, in addition to state budget allocations.
- "Development and Environment" which introduce for the first time the concept of Environmental Impact Assessment as a mandatory requirement for any new project.
- Management of hazardous substances and wastes
- Introduction of a system for economic incentives.

b) Protection of Air Environment from pollution

c) Protection of Water Environment which includes .

- Control of pollution from ships (implementing MARPOL 1973-1978 regulations)
- Control of pollution from Land-based sources and shore protection

d) Penalties and final provisions

According to the new law, the major regulations applicable in the coastal zones could be summarized as follows·

- The Egyptian Environmental Affairs Agency is assigned as the National Agency concerned with the coordination of the National Coastal Zone Management plan and also contingency planning.

- The mandatory requirement of the Environmental Impact Assessment studies for any new projects or activities

- The control of pollution from land based sources

- Implementation of MARPOL convention

- The article imposing a 200 meter (from the coastal line) setback zone along all coasts in Egypt for all new establishments and similar activities

- The prevention of any measures leading to changes in the natural coast line either by land filling or dredging

3.1 Institutional framework

Based on rules and regulations of environmental law (L4/94) and its executive regulations, the Ministerial Decree constituting the National Committee of Coastal Zone Management was issued.

The function of the CZM committee is not only to draw up a consistent policy and strategy for future development, but also to solve conflicts between user interests.

The assignments for the National CZM Committee, (in which top rank representatives of all concerned ministries, scientists and NGO's are members)are as follows

1- Coordinate all Coastal activities between the competent authorities towards an integrated Coastal Zone Management (CZM) through the drafting, setting and approval of general Guidelines for all activities, including Environmental Impact Assessment (EIA) studies.

2- To make sure that all land use plans and development activities in the coastal areas take into account contingency arrangements.

3- Harmonize the proposed development activity and the carrying capacity of the ecosystem toward a sustainable use of available resources.

4- Active participation in drafting and preparation of the Integrated CZM plan

5- To insure the implementation of the commitment of the Government of Egypt towards Regional and International conventions concerning the protection of marine Environment in the coastal areas.

6- Approve programs and plans aiming at restoration and maintenance of coastal ecosystems which may have suffered from environmental stress, damage and deterioration.

7- To coordinate and specify mandates for different authorities in the coastal area.

8- Approve National arrangements related to the protection of the environment in the coastal area and contingency plans

9- To study and evaluate all major projects to be executed in the coastal zone, especially projects leading to a conflict of interest between ministries or other governmental bodies before reaching a final decision

10- To look into any other activities or projects relevant to CZM

Recognizing the urgent need for coastal zone management planning to reduce the potential conflicts and to achieve sound environmental development, the Egyptian Environmental Affairs Agency, supported by the technical assistance programme of Denmark and The Netherlands, has started the preparation of such a plan

As the preparation of the CZM plan is a long term activity, and in order to secure sustainable development in consistency with the concept of the plan, EEAA has issued environmental guidelines for development in the coastal zone. The guidelines cover the coastal zones of Egypt and are of a general nature, indicating the major framework in which development can take place. EEAA has also prepared guidelines for the preparation of Environmental Impact assessments for tourism and urban development in the coastal zone.

4. INTERNATIONAL COOPERATION

Towards efficient implementation of the Egyptian Environmental Action Plan and sustainable development of the Egyptian coasts, number of projects on the Red Sea are implemented or being implemented through the financial support of international donors or bilateral technical assistance programs, among which :

a) Technical assistance to EEAA to strengthen the Institutional capacity on management of coastal zone development financed by Denmark and The Netherlands

b) Technical assistance to EEAA in Management of coastal zone development with special emphasis on CZM around the city of Hurghada supported by DANIDA/Denmark

c) Egyptian Red Sea Coastal and Marine Resources Management Project financed by the Global Environment Facility.

d) A Project for establishment of an Oil Combating Centre at the entrance of the Gulf of Aqaba financed by the EU.

e) Review and updating of the National Oil Spill Contingency Plan, financed by DANIDA/Denmark.

5. RECOMMENDATIONS

Bearing in mind that the Coastal zone in Egypt comprises a particularly unique and fragile marine ecosystem, for example, the Red sea is rich with extensive fringing and platform coral reefs, black mangrove swamps and highly varied marine life, it is essential to develop a regional comprehensive Coastal Zone Management between riparian countries on both the Red sea and the Mediterranean Plan

Such plan should aim to incorporate all national CZM plans, to set common guidelines towards sustainable development of the coastal zones and encourage regional and sub-regional cooperation in the field of combating oil pollution

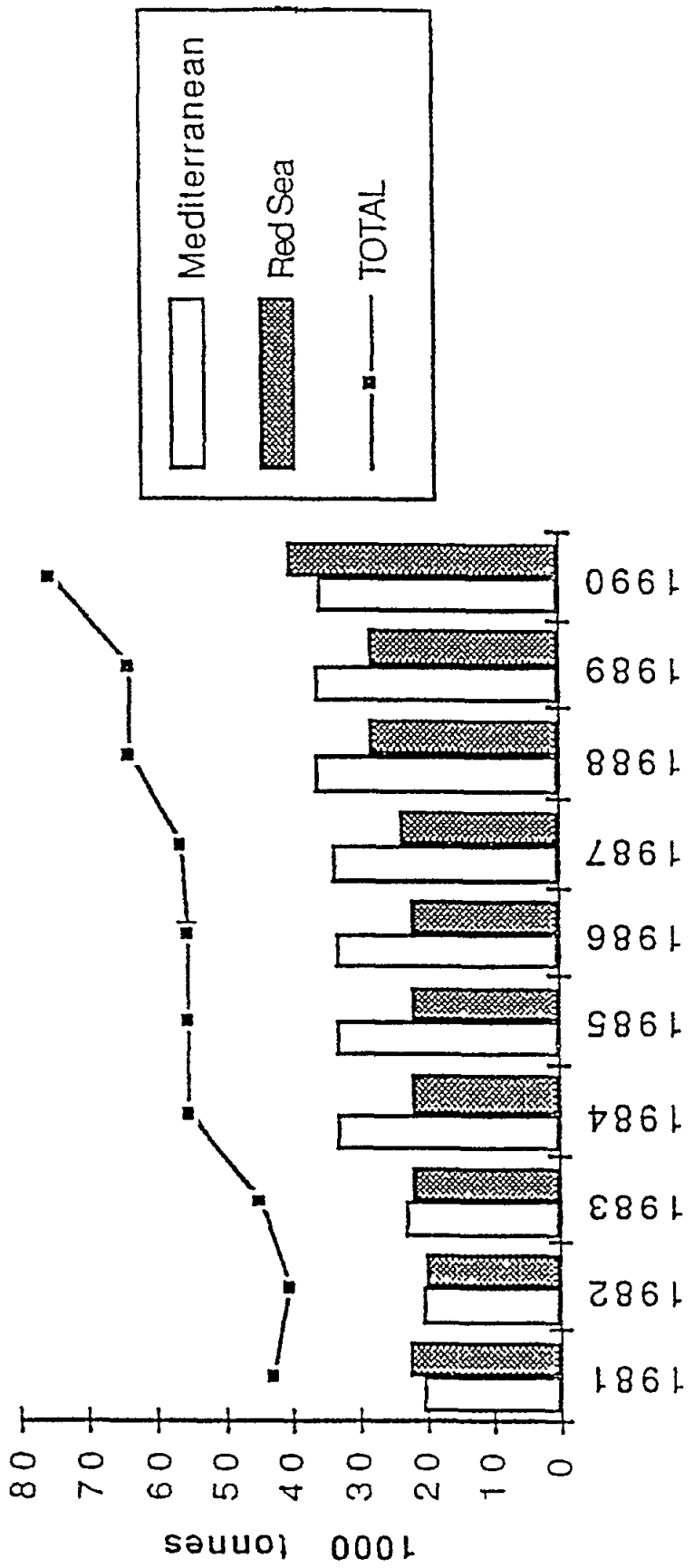


FIG. 1 Fish landings from the Mediterranean, Red Sea and Gulf of Suez 1981 to 1990.

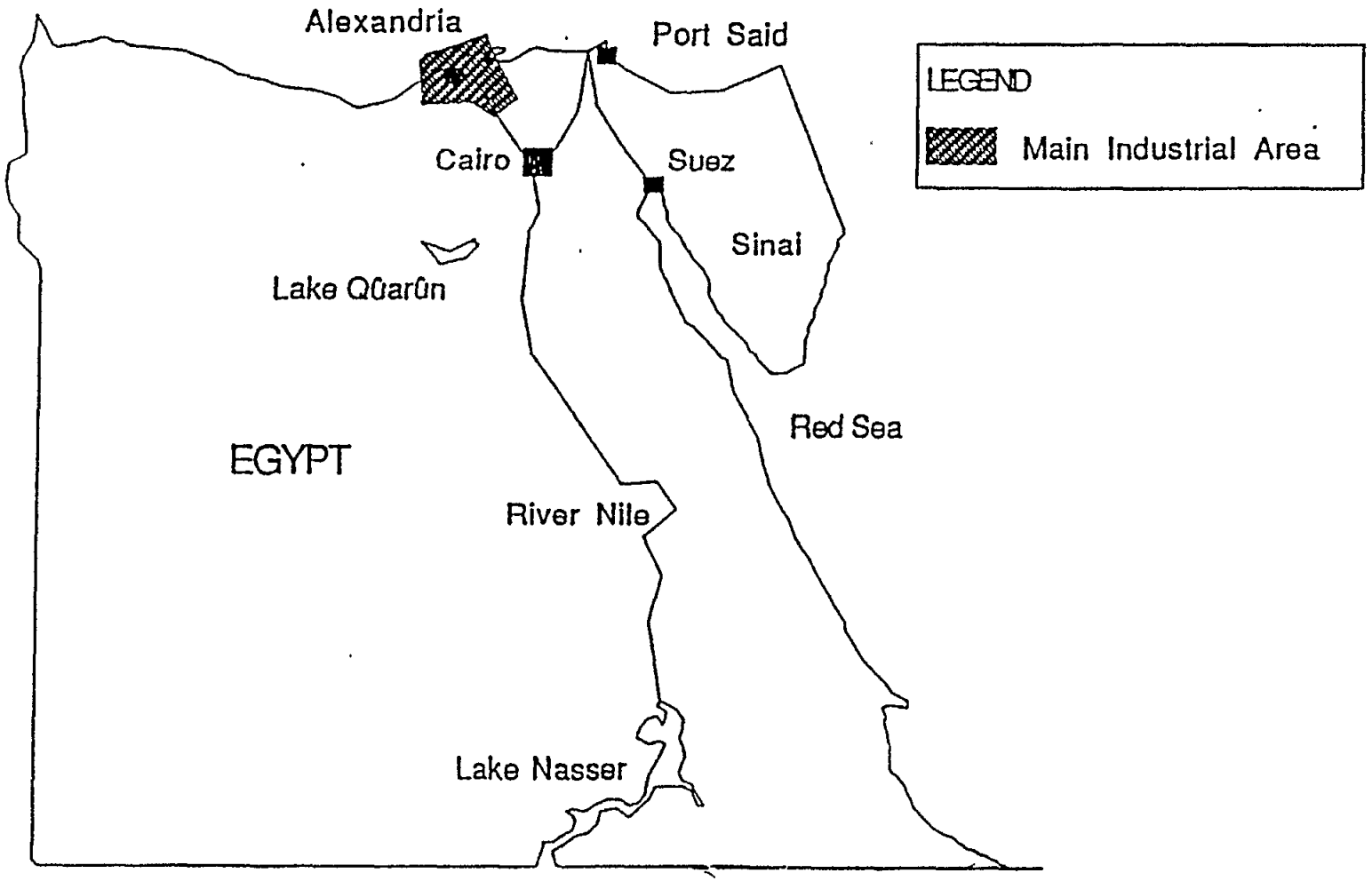


FIG . 2 Alexandria is the main industrial area in the coastal zone.

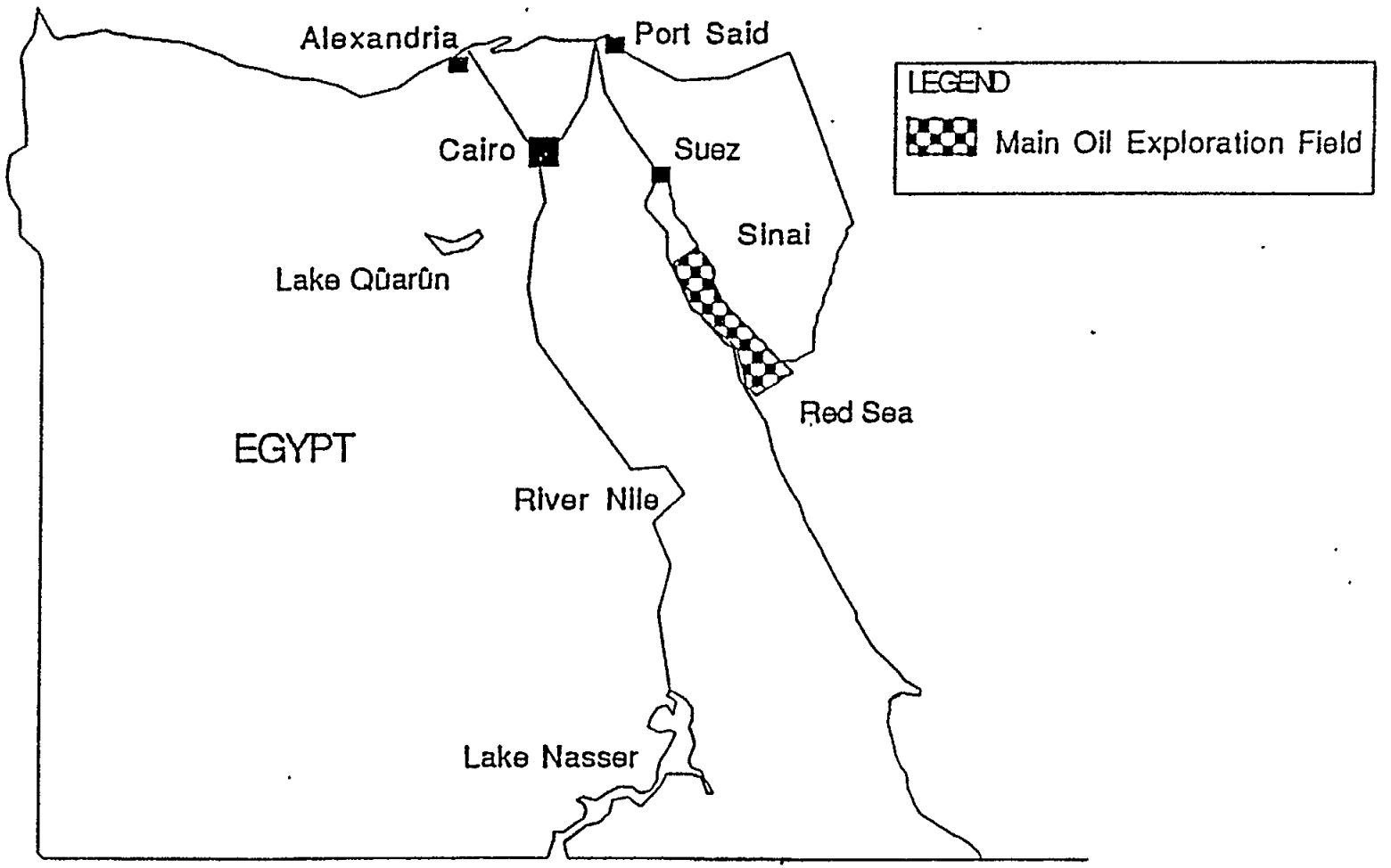


FIG. 3 Main oil exploration area.

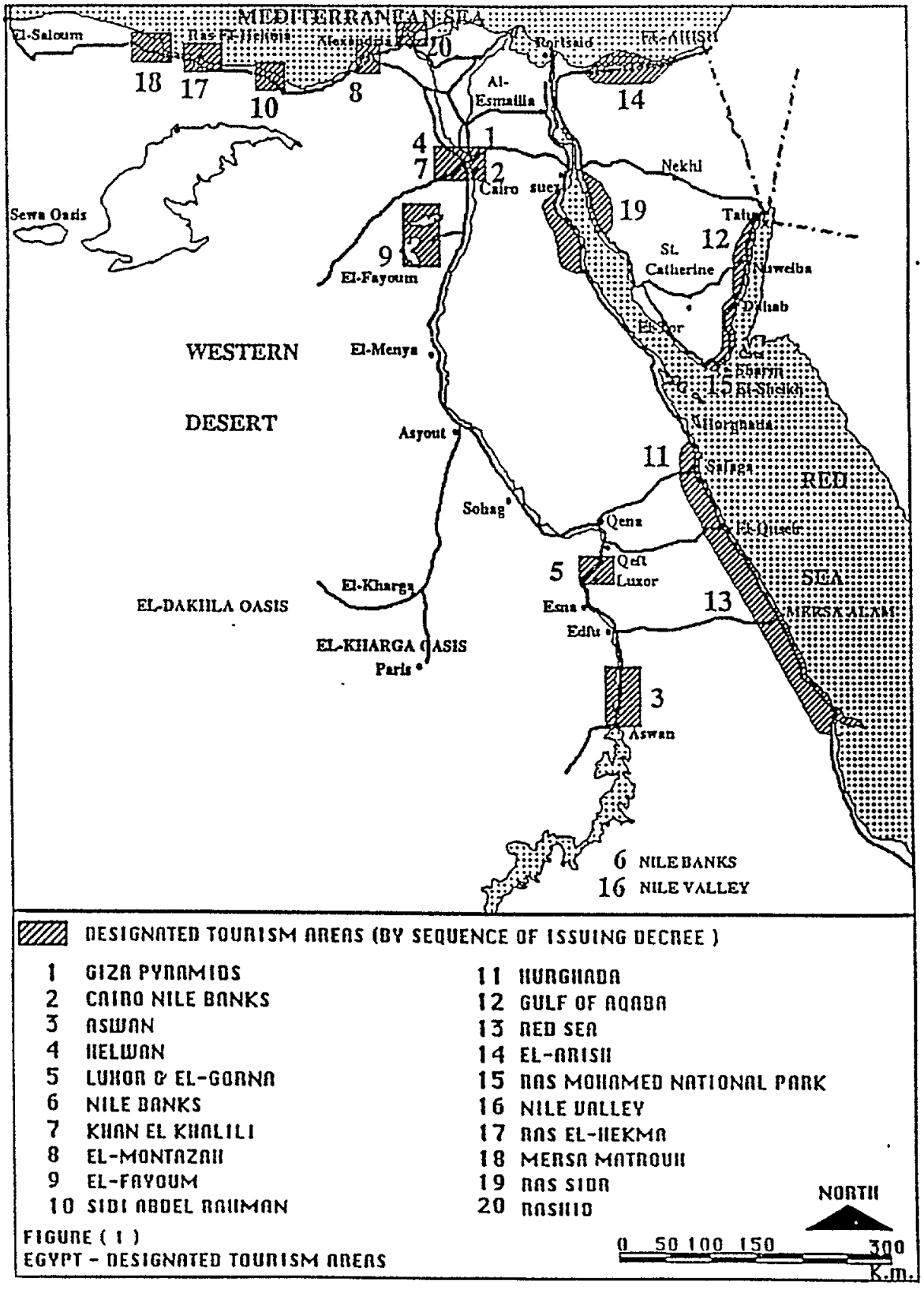


FIG . 4 Tourism Development Areas.

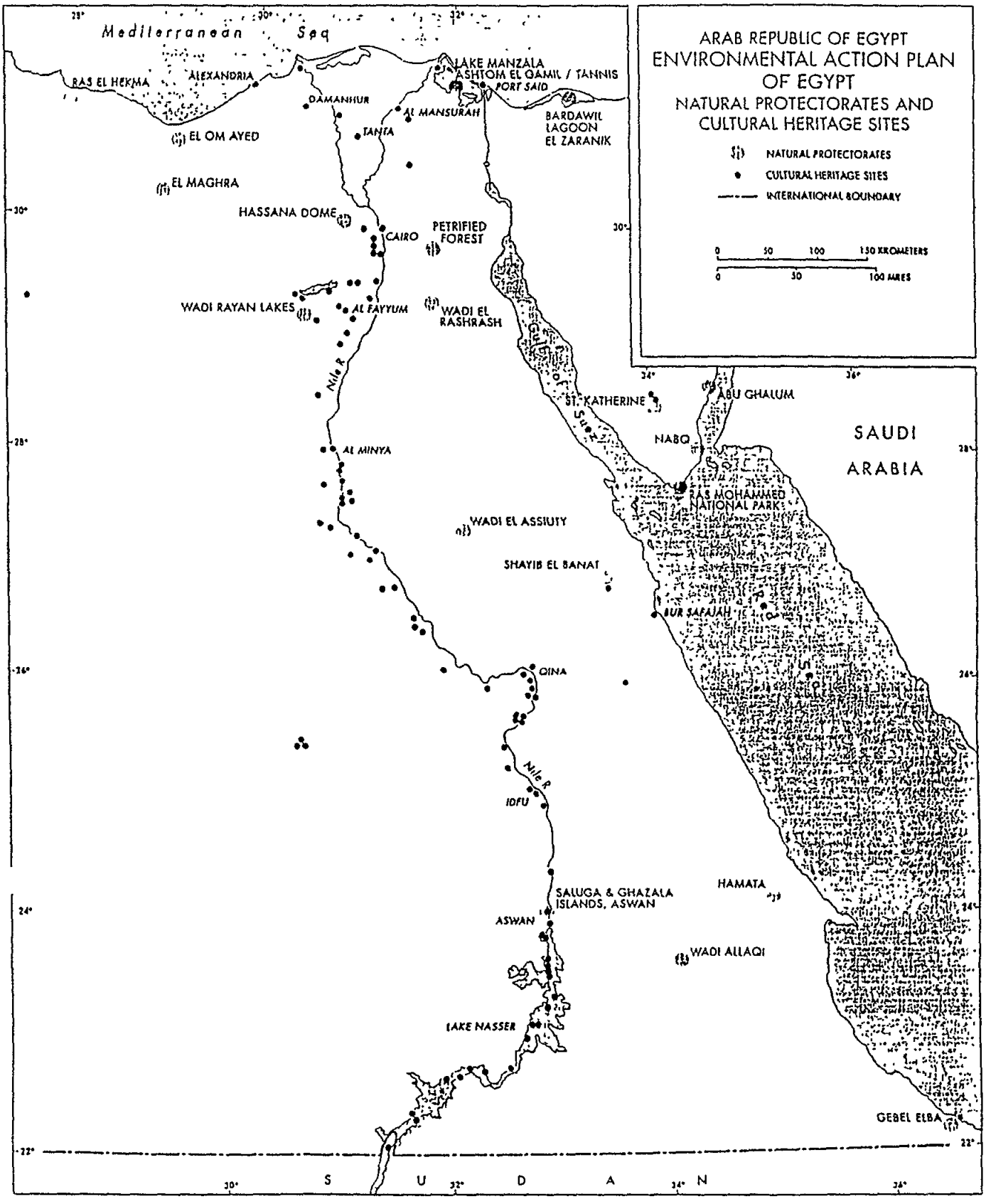

ARAB REPUBLIC OF EGYPT
ENVIRONMENTAL ACTION PLAN
OF EGYPT
NATURAL PROTECTORATES AND
CULTURAL HERITAGE SITES
NATURAL PROTECTORATES
CULTURAL HERITAGE SITES
INTERNATIONAL BOUNDARY
0 50 100 150 KILOMETERS
0 50 100 MILES
Mediterranean Sea
RAS EL HEKMA
ALEXANDRIA
LAKE MANZALA
ASHTOM EL GAMIL / TANNIS
PORT SAID
DAMANHUR
AL MANSURAH
BARDAWIL LAGOON
EL ZARANIK
TANTA
EL OM AYED
EL MAGHRA
HASSANA DOME
CAIRO
PETRIFIED FOREST
WADI RAYAN LAKES
AL FAYYUM
WADI EL RASHRASH
Nile R.
Gulf of Suez
ST. KATHERINE
ABU GHALUM
NABQ
SAUDI ARABIA
RAS MOHAMMED NATIONAL PARK
AL MINYA
WADI EL ASSIUTY
SHAYIB EL BANAT
QINA
Nile R.
IDFU
SALUGA & GHAZALA ISLANDS, ASWAN
ASWAN
HAMATA
WADI ALLAQI
LAKE NASSER
GEBEL ELBA
SUDAN

FIG. 5

Annex (1)

QUESTIONNAIRE
for Country Reports

Background information

1. The length of Egypt's Mediterranean coastline, including coastal lagoons, is 1550 km. Of the total length, 1000 km is primary (i.e. wave affected), and 550 Km is secondary (shorelines of coastal lagoons).

Significant features

The following is a brief description of the different coastal segments and features:

A high and presumably stable coast. The area is very sparsely populated, with only limited activity directly at the coast, including small scale agricultural (grazing), some industrial and fisheries activities, and only one commercial port. (Mersa Matruh).

In general, there are no important activities within the coastal strip, but beach and related tourism and recreation.

- *El Alamein - Alexandria*

A low coastal desert plain, expected to be subject to coastal erosion under conditions of sea level rise. In recent years, the building of recreation homes has boomed. This has led to a situation where a 500 to 1000 m wide strip adjacent to the beach is almost fully occupied with houses and related facilities, along a large part of this segment. The length of the shoreline occupied with sea side villages is about 70 km.

- *Alexandria - Port Said*

A coastal desert plain, expected to be subject to coastal erosion under conditions of sea level rise. Certain parts of the coast are protected by hard coastal structures, and artificial nourishment is applied at some beaches, especially in Alexandria. The Nile delta area is extensively used for agriculture. In the lower parts of the delta, the saline seepage from the aquifer aggravates salinity problems to agriculture. Population densities vary between 400 to well over 1200 people per Km^2, while the biggest cities in the delta are directly on the coast (Alexandria, port Said). In Alexandria and surroundings (Alexandria Governorate) 80% of national trade is handled through the major port of Alexandria and 40% of the nation's industry is located there. Within the low-lying coastal zone of the delta there are some large and shallow coastal lagoons (lakes); Burullus and Manazala being the largest. These lakes supply a considerable part of the nation's fish production Important tourist areas are found in the delta coast, particularly in Alexandria, Baltim and port Said Major commercial ports are located in Alexandria, Damietta and Port Said.

- *Port Said - Eastern border*

This segment comprises a low coastal plain, at least in part subject to coastal erosion. The area is sparsely populated, with some activity directly on the coast, including small scale agriculture, mining and fisheries. Tourism/recreation is still quite limited, with El Arish as a regional centre, which is also a fishing port. Lake Bardawil is used for fishing, but is less productive than the other lakes.

2. The highest population is found near Alexandria and Port Said (3.5 million and 0.5 million respectively). In the central delta, population is lower and widely distributed in areas with elevation less than 1 m. However, for the 8 coastal governorates the whole population is about 27 million (28% of the total population). This figure is not correct since about 6 million only lives directly in coastal areas (10% of the total population). The population density varies from 400 to 1200 p/Km2.

Economic activities

There are three major commercial harbours, Alexandria, Damietta and Port Said. 40% of the nation's industry is located near Alexandria. Alexandria has an international airport, while two domestic airports are located in Mersa Matruh and Port Said. Agricultural fertile lands are in the northern Nile delta, while newly reclaimed lands are around Alexandria. The coastal lakes fishery (including aquaculture) is 156,000 tons per year (in 1990): about 50% of the nations fishery production.

3. Only 15% of the coastal area is intensively developed, while 50% is sparsely developed and 35% still remains undeveloped.

Significant problems

- Irrational land use
- Water pollution
- Shore erosion and flooding
- Deterioration of natural resources

Policy responses and practices

4. The whole coastal area is under protection and regulated by the new law for the environment (Law No 4, 1994) and provisions.

Coastal areas are administratively defined (provisionally proposed and not yet adopted) as follows:

" The coastal zone is the domain of land-sea interface. It encompasses the territorial water and extends landward to areas of active interactions with the marine environment for at least 30 Km in the desert areas, unless major topographical features interrupt this stretch, while in the lower Nile Delta region the terrestrial part would extend up to contour +3.00m.

A Prime Minister's decree has to be issued in this respect, based upon the recommendation of the board of Directors of the EEAA, defining this zone in each of the coastal governorates to accommodate the environmental needs of existing and envisaged activities, and plans having impacts on both terrestrial and marine systems".

5. There are special purpose policies for coastal areas. These are reflected in the Law for the Environment (Law No , 1994) and its executive regulations.

6. The Egyptian Environmental Affairs Agency (EEAA) has been given the authority to "participate with the concerned agencies and ministries in the preparation of a national integrated coastal zone management plan for the Mediterranean Sea and the Red Sea coasts".

According to the Law for the Environment (No 4/1994), the Egyptian Environmental Affairs Agency (EEAA), was given the responsibility to initiate National Coastal Zone Management activities. A National Higher Steering Committee for Integrated Coastal Zone Management (ICZM) was initiated, and a Secretariat of this Committee was established under the Environmental Management Sector of the EEAA One of the major tasks of the Committee is to develop an Integrated Coastal Zone Management (ICZM)Programme.

The function of the CZM committee is not only to draw-up a consistent policy and strategy for future development, but also to resolve conflicts between user interests.

The assignments for the National CZM Committee, (including top rank representatives of all concerned ministries, scientists and NGO's), are as follows

- To co-ordinate all coastal activities between the competent authorities towards Integrated Coastal Zone Management (ICZM) through the drafting, setting and approval of general guidelines for all activities, including Environmental Impact Assessment (EIA) studies

- To make sure that all land use plans and development activities in the coastal areas take into account contingency arrangements.

- To harmonize the proposed development activity and the carrying capacity of the ecosystem toward a sustainable use of available resources.

- To ensure the active participation in drafting and preparing the ICZM Plan.

- To ensure efficient implementation of the commitments of the Egypt Government of Regional and International conventions concerning the protection of marine environment and the coastal areas.

- To approve programmes and plans aiming at restoring and the rehabilitation of coastal ecosystems which suffer from environmental stress, damage and deterioration

- To coordinate and specify mandates for different authorities in the coastal area.

- To approve national arrangements related to the protection of the environment in the coastal area and contingency plans

- To study and evaluate all major projects to be executed in the coastal zone, especially projects leading conflicts of interest between ministries or other governmental bodies while reaching a final decision.

- To examine any activities or projects relevant to CZM

The private sector and NGO's are involved in the coastal zone management planning and implementation.

7. Several different measures are used for coastal management such as land acquisition, zoning and building regulations, set back lines.. .etc.

8. There are high environmental concerns integrated in development policies in coastal management. The overall coordination and relevant activities are given to the EEAA, where the secretariat of the CZM Committee is established under the Sector of Environmental Management.

   Evaluation of impacts of development projects or plans on the environment (e.g. EIA) is a common prerequisite practice enforced by law EEAA has been given the mandate and responsibilities to develop guidelines for EIA, and to follow up the evaluation of development on the environment.

9. Policies and plans are being implemented in a satisfactory way further to the ratification of the new Law for the Environment (Law No.4/1994)

10. There are public awareness programmes for coastal management. Dissemination of information is regularly ensured through workshops, seminars, media, hearing committees, stakeholders and NGO participation

11. There are many successful examples of implementing coastal management at the local/regional/national levels.

    Coastal protection (soft or hard engineering solutions) are widely practiced particularly along the Nile delta and Alexandria

    There are several activities to study shore dynamics, protection of the coast and beaches of the Mediterranean, carried out by the Shore Protection Authority (SPA) and Coastal Research Institute (CRI) of Egypt

    Habitat/biodiversity protection is being implemented in west of Alexandria (El Omayed-Mediterranean Transition area/Biosphere Reserve)and Lake Manzala-Ashtom El Gamil/Tannis (Wetland, migrating birds, artisanal fisheries) and Bardawil lagoon/El Zaranik Mediterranean Coast-north Sinai (Wetland, migrating birds, artisanal fisheries)

    Tourist development, coastal planning, waste management recycling, water basin management are all in the national plans for environmental management, and many activities are being initiated, developed and implemented

    In association with UNEP/MAP, two case studies on implications of climatic changes on the coastal area of Fuka-Matruh and the northern Nile delta were carried out.

    In association with Delft Hydraulics, CRI, Resource Analysis, and the Dutch Ministry of Transport and Public Works, a Vulnerability Assessment to Accelerated Sea Level Rise of Egypt, including the Mediterranean, was concluded

WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of GREECE

(Contributed by Prof. Harry Coccossis)

NATIONAL REPORT OF GREECE

(Contributed by Prof Harry Coccossis and Ms Alexandra Mexa)

EXECUTIVE SUMMARY

Greece with a land area of 131.957 sq.km and a coastline which extends to 15.021 km, is the country with the most extensive coastline among all Mediterranean countries. The coastal area is evenly distributed between the continental part and the islands.

One may recognize three main types of coastal areas on the basis of economic and human activities developed.

- urbanized areas with or without secondary activities
- tourist areas
- areas of rural development or natural areas with no significant human activities

Greece with a total population of 10 323 000 (in 1995) is characterized by its high coastal concentration. In particular the population living on a relatively narrow strip of land one or two kilometres wide (in coastal Municipalities) is 3.445.000, representing 33% of the total population. If one considers the population living in areas with access to the coast (45 minute drive or up to 50 km from the seashore), then the coastal population is estimated at 8.817.000, that is 85% of the total

Coastal density is 88 -inhabitants per sq km- while the average density for the country is 75, which indicates that the interior density is considerably lower

Prospects suggest a modest population increase but geographic patterns vary widely from place to place Coastal areas and tourist resorts are likely to experience significant population increases in parallel with wide fluctuations in numbers of residents from season to season.

Besides these high urban concentrations on the coast, the last few decades suggest also a strong tendency towards *littorization* , meaning urban development sprawling along the coast, not necessarily in high densities. This process is encouraged by tourism development or an expanding construction of second homes

Tourist activities cover an important part of Greek coastal areas. In particular 90% of all tourist activities and recreation as well are located on the coast

International tourism is only a part of the tourist related problems many coastal areas face Domestic tourism often poses significant additional threats, estimated on the average at similar levels with international tourism, although experiences vary widely from place to place Domestic tourism contributes also to the urbanization of coastal areas as a result of the demand for second homes or apartments for rent/lease

Tourism related problems are not restricted to the control of urban development but also to functional problems for human settlements. Congestion of services and beach sites, drinking water delivery, liquid and solid waste disposal, noise and traffic congestion, etc., can be cited as typical problems of several tourist areas, often surpassing the organizational and financial capacity of local communities to deal with such issues.

Although Greece, in comparison to other European countries, has coasts in a relatively good natural state, the rapid developments of the last few decades bring alarming evidence of environmental degradation. The irreversible effects in some locations call for a revision of practices and policies towards the basic principles of sustainability.

There is no specific policy legislation for coastal area management. However, elements of it can be found in general spatial or sectoral policies concerning urban development, tourism, industry and agricultural development and in the general context and limitations provided by the Environmental Law -1650/86.

In spite of its wide application in the last decade, it should be noted that no efficient mechanisms for implementation have been developed. As a result, these broad policy guidelines are not operational or explicitly specified as rules, and often are subject to various interpretations and do not have a binding character. Experience so far, indicates that institutional regulation does not always serve as an effective tool for guiding socioeconomic development. Instead, it is used as a way to respond to already existing conditions or to satisfy local demands. Having this in mind it is doubtful whether additional regulations will make a reversal of the situation possible.

A great part of regulation has either never been implemented or has become inactive after a short period of implementation. This is usually the case for plans which aim at land development control and the definition of desirable/appropriate land uses. There is strong resistance from local people, owners of land, who refuse any control over land. Local policy and decision makers often submit to these pressures. The problem becomes more acute in all coastal areas, where prospects for tourism development are high. Any kind of restriction for building up an area will confront local interests. Since there is no proper implementation mechanism or monitoring, people often built in areas where they supposed not to, or they occupied more land than allowed to. Bureaucracy further contributes to ineffective implementation and monitoring.

To overcome the chronic problems of coastal areas and islands, the Ministry of the Environment, Physical Planning and Public Works has initiated a process towards a more effective coastal management. The new initiative provides for a high level National Committee for the Management of Coastal Areas and Islands, assisted by a Secretariat and several Task Forces at the Ministry level with the participation of experts from research and academic institutions.

The initiative foresees the elaboration of a strategy for the sustainable development of coastal areas and islands and the development of an Action Program for Coastal Areas and Islands.

The preparation of coastal policy will include:

- Definition of general and specific goals and objectives for sustainable development of coastal areas and islands.
- Delineation of the coastline and a critical zone along the national coasts to be designated as national heritage to be preserved as an area of protection for natural ecosystems and public open space.
- Identification of a broader zone for coastal management to be delineated for all coastal areas:

- In areas which face problems of pressure for development the purpose of management will be to specify the rules for the development of human activities ensuring the preservation of natural resources and ecosystems.
- In areas which face environmental degradation because of intensive development the purpose of management will be environmental upgrading enhancing natural resources, protecting the function of ecosystems and upgrading human activities.
- In areas relatively unharmed by human activities the purpose of management will be to ensure their protection as national reserves.

- For every type of coastal area, desirable and permitted uses will be defined and adequate public access to the coast will be provided for.
- Preparation of a particular approval process for all significant projects to be located on the coast. This could be achieved by refining existing tools (EIA).

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1. COASTAL AREAS: OPPORTUNITIES AND CHALLENGES

1.1 Introduction

Greece, with a land area of 131.957 sq km and a coastline which extends to 15.021 km, is the country with the most extensive coastline among all Mediterranean countries. The coastal area is evenly distributed between the continental part and the islands.

Over two thirds of the country is mountainous while 20 percent of the land is divided in more than 130 islands. Approximately 30% of the land is cultivated, 40% is pastures, 22% covered by forests, 2.5% covered by inland waters and 3.5% is built up, the rest being rocky land.

Greece is also the country with the largest number of islands, some of which are quite small and dispersed over the Aegean and Ionian seas.

One may recognize three main types of coastal areas on the basis of economic and human activities developed.

- urbanized areas with or without secondary activities
- tourist areas
- areas of rural development or natural areas with no significant human activities.

1.2 Coastal Environment

Three main types of coasts can be recognized throughout the whole country: beaches, rocky coasts and coastal wetlands (deltas, lagoons, etc.).

- *beaches and sand-dunes*: A variety of fauna and flora can be found along these areas. Due to their natural characteristics -both abiotic and biotic- they represent the areas were most of human activities are located. Sand dunes in several cases have been destroyed. Only during the last decade the value of these ecosystems has been widely recognized. Still, no significant measures for their protection have been adopted.

- *rocky coasts*: they represent 70% of Greek coastline. The fauna and especially the flora of these areas is significantly different, but still appears to be of high biodiversity. (Economidou, 1994)

- *wetlands*: Different types of wetlands can be found throughout the whole country. Table 2 presents the majority of all wetlands, whether they are situated in the coast or not. It should be noted that some of the wetlands can be considered as groups including other smaller wetlands. Based on this the total number of wetlands is estimated to 408. Table 3 illustrates the geographical distribution of wetlands throughout Greece. 118 wetlands can be found in North Greece -East Macedonia, Thraki, West Macedonia- accounting for the 31% of all wetlands. 151 wetlands can be found in the remaining continental country, accounting for the 40%, while 109 wetlands exist throughout all islands and Crete, accounting for the 29% of the total number.

In the wetlands many rare species of birdlife can be found -White-tailed eagle Heliaeetus albicilla, Spotted eagle Aquila clanga, Dalmatian pelican Pelecanus crispus, etc.).

Many species which can be found in the coastal zone are under severe pressure due basically to tourism development. Such species are the Spur-winged plover Hoplopterus spinosus, while three species of sea turtles -Caretta caretta- nest in different areas. Another rare specie is the monk seal Monachus monachus which is threatened with extinction.

In order to confront the severe problems the Greek Biotope/ Wetland Centre was established in Thessaloniki in 1991 as a joint action of the European Commission and the Goulandris Natural History Museum, with the approval and support of the Greek Ministry of Environment, Physical Planning and Public Works and with financial assistance from WWF-Greece.

Greece had 10 designated National Parks -in 1983- covering a total area of 350.000 Ha (UNEP,1990)

Coastal forests: Coastal forest areas amount to 10.000.000 ha accounting for 76% of total land area. Some 16% is covered by forests or maquis - a total area of 1.568.000 ha- Coastal forests account for 60% of the Country's forests (H.Marchand, 1988).

During the last decades successive fires, during summer, have destroyed large areas with forests or other kinds of flora. A significant part of these areas is usually coastal areas. Since land regulation for forests and forest areas is not well coordinated and control mechanisms are quite diffused, the burnt areas are occasionally converted to pasture land and eventually become built and urbanized. The lack of a systematic inventory of all the areas which are State property and lack of monitoring encourages the whole illegal process. A huge effort has been launched quite recently with the cadastral survey of the country.

Islands: Islands are special cases of coastal areas, calling for special management practice. With the exception of some large islands -Crete, Evia, Lesvos, Chios- where other activities besides tourism are being developed, all other small islands depend upon tourism for their future development. The main factors of attraction of the islands of Greece are their *natural assets*: the sun, the beaches and clean seas, the beauty of their *built environment*: the picturesque villages with a human scale, their architecture well adapted to the landscape, and of course the *people* : their open attitude and friendliness, the lifestyle. A possible degradation or loss of such assets is certain to affect tourism itself, and consequently, the future of social and economic activity on the islands in an irreversible way. Islands, more than other localities (endroits) depend on a delicate balance between environment, economy and society. They are particularly vulnerable to shifts in any of these factors due to their small scale and difficulty of access inducing higher transaction costs . Recovery costs are also much higher and restoration of balance tends to take much longer. To ensure a long lasting tourist activity it is necessary to plan for it in an integrated way in order to maximize its benefits and minimize its risks. (Coccossis, to be published)

Management of water resources, land development control, preservation of traditional settlements, provision of adequate infrastructure, assurance of a satisfactory level of services are of high priority.

1.3 Coastal Population

It is estimated that 57% of the country's population lives in coastal areas. Four out of five Prefectures (administrative divisions) are located on the coast, covering a total area of 100.278 sq km, accounting for 76.03% of the total land.

Greece with a total population of 10.323.000 (in 1995) is characterized by its high coastal concentration. In particular the population living on a relatively narrow strip of land one or two kilometres wide (in coastal Municipalities) is 3.445.000, representing 33% of the total population. If one considers the population living in areas with access to the coast (45 minute drive or up to 50 km from the seashore) then the coastal population is estimated to 8.817.000, that is 85% of the total. The remaining 15% of the total population live in the interior of the country (CEU, 1995).

Coastal density is 88 -inhabitants per sq km- while the average density for the country is 75, which indicates that the interior density is considerably lower.

Prospects suggest a modest population increase, but geographic patterns vary widely from place to place. Coastal areas and tourist resorts are likely to experience significant population increases in parallel with wide fluctuations in numbers of residents from season to season.

According to the Blue Plan Scenarios for Greece, coastal population is expected to increase in the mid- and long term (2025), although from a demographic point of view two Scenarios foresee a slight decrease of population in the long term (University of the Aegean, 1993).

It is estimated that 62% of the total population lives in urban areas, while in 2025 the urban population is expected to represent 79% of the total (Lanquar, 1995). Urbanization has been strongly associated with urban concentration. Most of the large urban centres are located on the coast. Table 1 presents the first fifteen cities ranked according to their population size. Two out of three are located on the coast. Most of these cities are important harbors as well, with the exception of the city of Rhodes which is also an important tourist resort in Greece and the Mediterranean.

The total urbanized coastal area is estimated around 1315 sq.km, that is 1.31% of the total land. This demonstrates a high utilization of land considering the geomorphology of the country. Prospects about coastal urbanization indicate a further increase in the mid and the long term (year 2025). The share of urban coastal population is expected to rise from 59.37% in 1985 up to 86.47% according to the worst scenario. Urbanization in coastal areas is not expected to be lower than 67.84% by the year 2000 (University of the Aegean, 1993).

In spite of an increase of both coastal population in general and of coastal urban population in particular, density will still remain low when compared to other Mediterranean countries. Compared with the rest of Europe, Greece will continue to demonstrate lower urbanization rates, although in the distant future the differences are expected to become less important.

Besides these high urban concentrations on the coast, the last few decades suggest also a strong tendency towards *littorization* , meaning urban development sprawling along the coast not necessarily in high densities. This process is encouraged by tourism development

or an expanding construction of second homes. This suggests that in the long term urbanization of the coast will continue with increasing densities, as such areas are likely to be converted to prime residential areas, particularly those near the large urban centres. This is an anticipated outcome from the growing tendency of people to seek residences in "environmental amenity areas" and the coasts have a lot to offer in this context. As a result demands for adequate infrastructure in these areas will become more acute in the near future triggering further concentration of activities and people, boosting urban development along the coast.

1. 4 Economic Activities

Primary Sector

Agriculture

Coastal land is considered to be of high productivity, rich in water resources Coastal agricultural land covers 35% of the total coastal land, including some areas of high potential productivity. Even though the coastal environment is suitable for all kinds of cultivation due to its generally milder climate, the future of coastal agriculture is challenged Conflicts over land use arise commonly between agriculture and tourism development The lack of efficient agricultural land regulation context in association with the large economic benefits arising from peoples' participation in tourism development, have encouraged the abandonment of agricultural land and its gradual transformation.

Agricultural areas located in the vicinity of large urban centres, appear to follow a gradual transformation process, where agricultural activities are replaced by activities of the secondary sector or the tertiary or become areas for second homes. This process is more acute in coastal areas.

Besides conflicts over land use, another cause for an expected future decline of this activity could be the implementation of Community Agricultural Policy and the realization of the Single European Market. In the long term it is possible that restructuring and modernization efforts could have a positive impact particularly in these areas which have large plains like Crete, South Peloponnisos, Thessalia and East Macedonia. However, in most cases unless particular measures are taken, marginal agricultural activities will be replaced, causing an irreversible transformation of the environment, not always desirable. This is probably the most important problem for the smaller islands.

Cattle-breeding

Coastal areas include areas where the biomass is considerably high, therefore encouraging the development of this activity, although in Greece most of breeding is mountain related (goat and sheep raising).

Fishing/Aquaculture

Coastal fishing is an important activity About 40,000 people are occupied in this sector, using about 6,000 fishing boats. However, coastal fishing cannot cover the total demand but only a small part of it. So, besides fishing, another activity which has been growing in the last decade is aquaculture There are several aquaculture installations all

around Greece in islands like Limnos, Lesvos, Crete, Leros, Cephalonia, Ithaki etc. but also along the mainland coasts such as East Macedonia, Peloponnisos, Thrace, etc.

In general the areas suitable for aquaculture are lagoons, river deltas and estuaries, which are, from an environmental conservation perspective, areas of interest. Their siting is subject to a an administrative review procedure. However, in some cases there are strong conflicts of priorities in addition to occasional conflicts with local fishermen.

Saltpans and salt production

Salt production has been an important coastal lagoon activity in the past, but gradually most sites have been abandoned due to negative economies of scale associated with small scale production. There are several saltpans throughout the country Attica, Lesvos, Lefkada, Messolonghi, Zakinthos, Crete, Halkidiki, Pieria, Corfu, Milos, Thessaloniki, Xanthi, Samos, Halkida, Rodopi, etc. As salt production is strongly seasonal in character (summer) saltpans are widely used by migratory birds for wintering or intermediate stops. Recent experiences suggest a strong compatibility of salt production and environmental conservation (i.e Messolonghi).

Secondary Sector

Mining and Industry

More than 80% of all industrial activities are located on the coast. Usually the industries that prefer coastal locations are only the ones which need water as part of their production process, or need water access for transportation purposes In Greece, though, there has been a strong industrial concentration in coastal areas due to the coastal location of many major urban centres, the traditional role of shipping in transport of industrial products (i.e. mining raw materials, cement, etc.) but also due to the location pattern of the major road transport axis from Patras to Kavala in the vicinity of the Greek coastline for geomorphological reasons.

Mining locations are commonly near the coast, causing serious conflicts in some areas with other activities, mostly tourism. In the past, industrial locations have been also a cause for environmental or land use conflicts in coastal sites mainly relating to the processing of raw materials (i.e. alumina plant, oil refining or gold smelting).

Industrial locations are strongly dependent on road transport and large urban centres and quite dispersed over the landscape In the future, international competition in conjunction with other factors -human capital, infrastructure, services required, investments in other sectors, etc. are likely to favour locations near agricultural production areas or large urban centres. Large and medium-size cities mainly situated in northern Greece seem to be such places. Few coastal sites are favoured for such developments

Shipping and Navigation

Harbors exist throughout the whole country, Piraeus and Thessaloniki being the most important among them. Each island has its own small harbor. Environmental conflicts can be caused form accidents threatening severe pollution problems

Tertiary Sector

Tourism

The natural -and cultural- assets of coastal areas attract a large number of tourists every year. Greece received 11 649 945 tourists in 1993, while over-night stays were 49.592.246, out of which 37.186 100 were international tourists. The islands have a large share of international tourism.

Tourist activities cover an important part of Greek coastal areas. In particular 90% of all tourist activities and recreation as well are located on the coast. This concentration is justified by the type of tourism developed in Greece, mass tourism related to sun, sea, sand, although usually linked to visits to cultural sites. A very small proportion of tourist installations can be found in other places. In the last few years the efforts of both policy makers and investors have been oriented towards a broadening of tourist product and the amelioration of services provided. Even so, these efforts do not suggest in any case a radical change of the tourist product itself. A large part of future activities related with tourism are expected to be located along the coast.

Tourist Density -tourists per sq km - along the coast is 13, while the corresponding average density for all Mediterranean coastal areas is 15.6 Tourist Occupation -tourists per metre length of coastline- as a measure of tourist development along the coast is 0,1 while the corresponding average occupation for the Mediterranean is 0,41 suggesting that in spite of its tourist development Greece does not face serious problems of crowding or dense tourist development. The index of social pressure - ratio of tourists/ local population- is 0,14, equal to the corresponding average (Lanquar, 1995)

International tourism is only a part of the tourist related problems many coastal areas face. Domestic tourism often pauses significant additional threats, estimated on the average at similar levels with international tourism, although experiences vary widely from place to place. Domestic tourism contributes also to the urbanization of coastal areas as a result of the demand for second homes or apartments for rent/lease

The areas that drew great profits from the rapid development of tourism were basically areas with a great coastal or island parts like Crete, Rhodes, Cos, Cyclades, Corfu, Halkidiki, Argolida, etc. There is still a strong potential for further tourist development in these and other areas which is gradually realized as new public investments allow for better access (i.e roads, airports, marinas, etc.) or better services (i e waste water treatment, telecommunications etc.).

Prospects indicate that tourism development could increase further even in the most pessimistic scenarios in spite of some possible short run fluctuations.

Besides economic profits, tourism development has contributed though to a gradual deterioration of environmental quality through urbanization along the coast and a deterioration of the built environment particularly in traditional settlements. Although Greece is not characterized by large scale tourist installations, to an extent that other Mediterranean destinations have been developed, in several cases the impacts of tourism associated urban development and sprawl have altered the scale and architectural character of traditional settlements, in spite of building and aesthetic control regulations Such is often the case with the small human settlements in some islands which have been popular tourist resorts

Tourism related problems are not restricted to the control of urban development but also to functional problems for human settlements. Congestion of services and beach sites, drinking water delivery, liquid and solid waste disposal, noise and traffic congestion, etc., can be cited as typical problems of several tourist areas, often surpassing the organizational and financial capacity of local communities to deal with such issues.

To a great extent such problems are caused by the strong seasonality of tourism in Greece. During summer population concentration is high, often exceeding the carrying capacity of both the natural ecosystem, the organizational structures -infrastructure, services- causing severe impacts not necessarily reversible. This over-concentration calls for investments for the provision of required infrastructure which ameliorate the situation further, enhancing the attraction of tourist destinations, often leading to another cycle of new investments, urbanization, congestion, degradation and so on.

Islands, particularly the smaller ones, but also many coastal resort sites, face often serious problems of seasonal overloading and abandonment, rendering the management of tourism difficult from many points of view.

1.5 Environmental Impacts

Although some of the most important environment/development issues have been already presented in previous sections a brief presentation of environmental component related problems are recapitulated in the paragraphs to follow.

Water

Water degradation is a problem in some coastal places, particularly where associated with limited water resources as in many islands. Although extensive data on the condition of groundwater resources are lacking there is evidence of ground water contamination due to uncontrolled liquid waste disposal and problems of salinisation due to over pumping.

In some wetlands and river deltas pollution problems can be evident due basically to intensive agricultural development, associated with a non rational consumption of pesticides and fertilizers. This often results in increased concentration levels of chemical compounds, organic pollution and/or eutrophication problems.

Sea

Sea pollution is basically localized. Pollution levels are quite high in some places which are in the vicinity of large urban centres or industrial sites. The urbanization of the coast in relation with the lack of adequate infrastructure -sewage system- have contributed in some places to a deterioration of the quality of the marine environment. Luckily the situation in most cases is not considered as irreversible. In particular 27 coastal cities with a population exceeding 10,000 for a total population of 4.568.000, will construct in the near future treatment plants for a total cost of 369.780 $ (UNEP,1995). Therefore sea pollution levels may drop.

Land

Probably the most severe environmental impacts are related to the permanent alteration of land uses and its effect on rural ecosystems. Urbanization of the coast has provoked radical changes to the natural environment in many ways The sprawling and continuous urban development along the coast has caused losses of agricultural land and open spaces which could also serve as habitat areas and sites for recreation. This is quite often the case in tourist areas, where the rate of loss of agricultural land is quite high.

Habitats

Intensive agriculture, illegal breeding in forest areas, tourism development, uncontrolled building, public works, etc are often causes for the deterioration of coastal ecosystems. Sand dunes have been particularly affected

Coastal erosion

This seems to be particularly acute in some sites where various forms of public or private works (small jetties, landfills, etc.) have been directly located on the coastline without detailed studies or in cases where such works have had indirect effects interfering with soil/sand deposition patterns (i.e coastal roads)

Landscape

Deterioration of land aesthetics is associated with urban development but also with mining and quarrying facilities.

Although Greece, in comparison to other European countries, has its coasts in a relatively good natural state, the rapid development of the last few decades brings alarming evidence of environmental degradation. The irreversible effects in some locations call for a revision of practices and policies towards the basic principles of sustainability.

2. POLICY RESPONSES AND PRACTICES

2.1 Coastal Policy

There is no specific policy legislation for coastal area management However, elements of it can be found in general spatial or sectoral policies concerning urban development, tourism, industry and agricultural development in the general context and limitations provided by the Environmental Law -1650/86

In particular, the policy concerning the creation of new settlements or the expansion of existing ones (Law 1337/83) provides for the following

- Absorption of future demand by existing settlements
- Avoidance of the expansion of existing settlements and in particular of the expansion along the coast

- Definition of the boundaries of the areas which could be built up. Encourage expansion in the areas where density permits so, and in any case encourage central -around a junction- and no linear development

- Protection of beaches and natural coastal areas, assure public access.

In spite of its wide application in the last decade, it should be noted that no efficient mechanisms for implementation have been developed As a result these broad policy guidelines are not operational or explicitly specified as rules and often are subject to various interpretations and do not have a binding character. Experience so far, indicates that institutional regulation does not always serve as an effective tool for guiding socioeconomic development, instead it is used as a way to respond to already shaped conditions or to satisfy local demands. With this in mind it is doubtful whether some additional regulations will make a reversal of the situation possible.

Concerning the policy on tourism development, the main policy guidelines suggest:

- Amelioration of quality and enhancement of tourist services in general, encouraging new tourist products

- Lengthening the tourist season

- Discouraging mass tourism.

- Preservation of both natural and human environments, since they are tourist assets.

Emphasis is put on discouraging illegal accommodation and the prohibition of building facilities in saturated areas. Effectively the real control is through the definition of an upper limit of required land area for all plots used for the construction of tourist accommodation. In general the development of accommodation in large plots is encouraged, if possible, with traditional materials.

Concerning the preservation of agricultural land and related activity, particularly in coastal areas, where pressure for tourism and urban development in general is high, a particular provision -Law 1337/83- does not allow the expansion of settlements if they are not with accordance with environmental protection and with the broader development goals, within which the preservation of agricultural land of high productivity is included. Other provisions exist as well. However, there is a general lack of linking such physical planning regulation to socio-economic development programs and projects, so there is often an absence of a framework for setting such priorities which the law presupposes as existing

Two types of agricultural land have been designated as areas of high priority for protection: agricultural land which is irrigated or can be irrigated in the future, and land where traditional agricultural activities are undertaken Although the need for protection of these areas has been widely recognized, no institutional arrangements make the above policy suggestions obligatory. Furthermore, there is no designation of such areas from the Ministry of Agriculture which causes significant problems in interpreting and implementing the provisions of the law

One may refer to sectoral or other policies related with activities located on the coast. As a general comment, it is evident that all these policies, besides their deficiencies, do not constitute in any case an integrated coastal management policy, that is, a policy developed specifically for the management of coastal resources, defining:

- Identification of coastal area(s)
- Goals of coastal management
- Procedures for the preparation of management plans
- Policy instruments which are suitable to be used
- Authorities responsible for coastal management
- Financial provisions of coastal management
- Implementation mechanisms
- Monitoring.

Most of these sectoral or other isolated policies are mainly related to building regulations or land development control, through which coastal policy is exerted It is clear that the current institutional context is inadequate to deal with the complex problems of the coastal areas.

2.2 Regulation of coastal urban development

The basic law for land-use regulation is Land Development Law 1337 of 1982 which applies to urban areas and small towns. Land development in rural areas is practically unconstrained and is regulated by a Presidential Decree for building in areas outside official town plans.

Land use control in settlements of over 2000 population requires a General Master Plan. For smaller settlements, land use control requires "development boundary plans", in practice generously expanded to accommodate holiday homes. For areas outside existing General Master Plans and village boundary plans, the law provides for the designation of Development Control Zones (ZOE) Master Plans and Development Control Zones are subject to elaborate preparation and review procedures

Besides these there are some other specific control instruments concerning:

- *Tourist control zones (saturated and development control for tourist areas)* This regulation is in addition to Master Plan approval and applies to a limited number of areas and only for tourist installations These areas are identified at the central administration level

- Building regulations for all areas outside approved general master plans. This is a controversial piece of legislation dating from the 1920's which is basically responsible for urban sprawl in rural areas but which also has wide political (and electoral) support. It gives the right to build on a large enough piece of land outside urban areas.

Main characteristics of the implementation:

1. Land use plans for the areas outside urban centres cover only 2% of the total land.

2. The regulation context for all these areas, outside existing plans, has several negative impacts since it allows for:

   - high Floor Area Ratios for certain economic activities, like tourism and industry, often exceeding corresponding coefficients for the areas in existing plans
   - Small size lots
   - the development of certain activities -tourism- without assuring the preservation of agricultural land of high productivity or wetlands, etc.

3 Illegal partition of plots which exist out of existing plans.

4. Illegal building activity.

5. One should also note·

   - the lack of appropriate mechanisms for the implementation of land policy;
   - the lack of land cadastre,
   - the lack of a system for codification and classification of land uses;
   - the lack of spatial plans and development programs and in particular, the lack of integration among them

2.3 Coastal Management tools

There are no effective tools for coastal management. Most of applied policies and their corresponding tools aim at land development control, building regulation or at encouraging certain economic activities They do not differentiate, though, between coastal areas and other areas, and there is no institutional mechanism to ensure coordination between economic development policies and physical planning. Therefore, so far there are no successful examples of coastal area planning. To some extent this is also due to a strong centralization of decision making, lack of experience and organizational structures at the local level and insufficient horizontal(multi sectoral) and vertical (national/regional/local) coordination of policies

The above do not suggest though that there are no efforts to improve the situation In 1980-82 a short lived National Coastal Management Programme was initiated, mainly at the central administrative level. In the 1983 Reports for the Structural Plans for each Prefecture special attention was drawn to the problems of coastal areas In the Report for the National Physical Plan presented in the early eighties, a special chapter was devoted to the problems of the coastal zone. Ever since, several attempts have been made to adopt parts of a coastal management policy, either in the form of minimum setback regulations from the coastline (30 m. for Greece) or in more recent Physical Planning Studies under ENVIREG for a number of coastal areas and islands, currently still under elaboration.

Efforts to adapt sectoral policies to environmental issues have also attempted to bridge the gap between socio-economic programming and physical planning.

Since the main activity developed along the coast is tourism, special efforts have been addressed at the development of economic activity itself.

One of the new tools recently introduced but not yet implemented is the creation of P.O.T.A -Areas of Integrated Tourism Development-. POTA are recognized as:

a. areas with significant tourism infrastructure where demand is quite important;
b. areas where tourism infrastructure is important, while natural environment is rather fragile and demand is still high;
c. areas with important infrastructure and low demand.

The creation of these areas aims, on one hand, at the control of tourism development, and on the other hand, at the improvement of tourism services, since in these areas it would be possible to provide adequate infrastructure and assure the provision of high quality services.

It should be noted though that this system defines tourist capacities and limits based not upon the study of the carrying capacity of the natural system, but only on socioeconomic criteria. That is, through POTA, areas of different levels of tourism development are defined without reference to possible local natural particularities. Another comment to be made in this respect is that the goal of amelioration of quality is strictly related to the construction of hotels of a certain type - "A" class- and not to a broader perspective of social and environmental goals.

E.X.M -Special Spatial Studies- represent the only type of spatial planning which is being carried on a very systematic way. These studies have been financed by European Union funds -IMP, ENVIREG-.. The study area is very limited and it basically includes coastal areas and small islands, which represent areas where pressure from tourism development is severe. The ultimate goal is the definition of land use and building conditions for all the areas which do not belong to existing plans.

The major tool to achieve such control is Z.O.E -Zones for Development Control- which is used for building and land use control. This relates to provisions for anticipating future development through land development regulation, mostly relating to physical planning issues. Although Z.O.E. is the most widely used tool in planning, its scope for integrated coastal area management is limited as its breadth is restricted to development regulation.

In any case, the EXM studies can not be considered sufficient for coastal management as they lack the broader framework of plans at a regional scale, which would provide broad guidelines about the role and the spatial distribution of activities. In addition they cannot provide for satisfactory integration of environmental management issues in coastal area management.

The area covered by the E.X.M is estimated at 10-12% of total land area, while the area where interventions are suggested represents 8%. Finally, the areas for which Zones for building control is expected to be instituted does not exceed 4%. If one considers the amount of ZOE that have been approved so far, then the percentage becomes insignificant. The main problem confronted in the implementation process is the restrictive nature of building conditions suggested by these plans for all areas which are located outside of the planned areas. This goes against the common practice of building up to the maximum potential from an owner's perspective. Enormous social pressure explains partly why very few of the ZOE suggested by the E.X.M succeed in reaching the final stage of adoption.

Environmental Law 1650/86 can be used as a tool for spatial planning for areas which present certain special environmental characteristics. The law provides for the designation and delineation of areas of protection and conservation -national parks, marine parks, aesthetic landscapes, areas of significant ecological value- or areas for the development of productive activities. The law allows restrictions to be applied to the development of activities within both the zone of protection and its surrounding zone in order to achieve land use control.

The Law also provides the planner with some economic tools -exchange of land areas, compensation, allowances, transfer of floor area ratio, compulsory expropriation. It is also possible to prohibit or postpone any building activity during the area designation stage as protected -fully or partially-. These mechanisms provided through the Environmental Law are important but the main problem is that most of these are still ineffective since the corresponding Presidential Decrees have not been signed.

Another tool which is being used is the administrative mechanism for Spatial Allocation of isolated tourist or industrial installations. It is essentially a review process which gives, in principle, acceptance to a proposed project before the stage when it seeks approval for special assistance under the various assistance laws (i.e. incentives laws).

For individual projects an Environmental Impact Assessment is required, based on a joint ministerial decision in conformity with European Union directives, but such a procedure does not differentiate coastal area projects from other types of projects on the basis of the particularity of the air/water/land interaction in the coastal zone.

2.4 Authorities responsible for Coastal Management

The Ministry of Environment Physical Planning and Public Works and in particular the General Directorate for the Environment and Spatial Planning is mainly responsible for the development of an integrated approach to the planning and management of land resources. The basic legislation related to issues of planning and management of land resources -360/76 Regional Spatial Planning and L. 1650/86 Environmental Protection- is currently under review to be amended.

Recently, the judiciary sector, in particular the State Council, which is the highest administrative law Court, has taken initiatives towards the establishment of links between environmental protection and spatial planning.

Although, from a legislative point of view, the potential exists to pursue coastal management, administrative structures are not always up to such a task. Besides the Ministry of Environment Physical Planning and Public Works, other authorities which directly or indirectly influence the formulation of coastal policy are the Ministries of National Economy, Defence, Interior, Finance, Health, Agriculture, Development (Industry, Tourism) and the Ministry of Merchant Marine. There is no provision for a mechanism at government level which could pursue coordination and arbitration in case of severe problems (Spanou, 1994).

Responsibilities for coastal planning are spread among national, regional and local level, causing severe problems of gaps and overlaps of authority and accounting for the inefficiency of the administrative system to respond. The planning system is not flexible, often oriented towards the remedy of past problems, unable to foresee future needs and problems.

The fragmentation of responsibilities between central authorities has resulted in inconsistencies between physical plans, prepared by the Ministry of Environment, Planning and Public Works, and economic or other sectoral and regional development plans, prepared by the Ministry of National Economy or other sectoral Ministries.

The institutional context, along with an insufficient regulatory system, can not control the rapid urbanization process, and in several cases fails in the preservation of both the natural and built environment or the preservation of traditional activities like agriculture.

Coordination among different sectors along with the "decentralization" of information, implementation, monitoring and control system are yet to be fully established.

Problems due to overlapping, competition, limited authorities, gaps in horizontal and vertical communication between authorities are yet to be overcome.

According to a recent report prepared by the Ministry of National Economy there are about 50 institutions currently occupied with environmental issues.

The Law on the protection of the environment provides for the establishment of a National Committee for the Environment -EFOP-. Its institution faces opposition.

Departments of Environment have been setup within several regions, aiming at the collection of information concerning environmental quality and the preparation of proposals for the adoption of corresponding measures. Still, there is no particular public participation in the decision making process over environmental issues. Environmental Offices established in each Prefecture are mainly responsible for the approval of the "Environmental Impact Assessment" Studies .

In conclusion, there is still a lot to be done in order to reach a satisfactory level of interagency and intersectoral coordination at all levels, an essential component of rational coastal management.

2.5 The Role of Local Authorities

Local authorities are participating in the Organizations of Planning and Environmental Protection in Athens and Thessaloniki and foresee participating in the National Institution of Environment when it will be set up. They would then express their opinion about regional development plans over environmental issues.

As already noted, except for the responsibilities for sewage, waste, traffic, and gardening, no other responsibilities were given to Local Authorities till very recently. The Environment Law recognizes the necessity for more active participation of local authorities. Even though the implementation of environmental policy is still the responsibility of central or regional authorities (Spanou, 1994).

2.6 The role of NGOs and the Private Sector in Coastal Management

Non Governmental Organizations play a positive role in several cases. During the last decade the number and the negotiation power of NGOs has increased. Usually their role is local issue oriented. So, there are several organizations occupied with acute local

environmental problems. There is also the case of NGOs that have devoted a lot of their efforts to the prevention of large scale projects (i.e. Aheloos river diversion) or the preservation of species (i.e. the monk seals or loggerhead turtles). Although their role and their participation in the decision making and planning process is still very limited, future prospects could be more promising on the condition that institutional modifications in relation with changes in peoples' attitudes take place.

The private sector has no authority in coastal management. It should be noted that there are no effective mechanisms which could assure provision of information, facilitate communication and furthermore encourage sensitization of the private sector -mainly land owners- over coastal issues.

In addition, there are no appropriate mechanisms to encourage cooperation between the public and private sectors which could further contribute to a more rational coastal development.

The existing institutional context provides only for the establishment of either "pure" or joint ventures of local -public and private enterprises, while it does not provide with the opportunity to establish a particular management agency which could assure the participation of public administration, local authorities, business, local professionals and other local organizations.

2.7 Assessment of Environmental Impacts

Greece, like all European Countries, has adopted the corresponding regulation on the assessment of environmental impacts of large projects. Therefore all projects which belong in the first category have to submit, in order to obtain authorization, an environmental impact statement. Hotels, over a certain capacity belong to this category.

There is no environmental impact assessment of policies or national/regional plans.

2.8 Implementation of coastal policy

Policies and plans are not effectively implemented although usually approved at the national and regional level.

A great part of regulation has either never been implemented or has become inactive after a short period of implementation (i.e. law 360/76, penalties for illegal constructions and land partition). Still, constant violation is a common practice even when a law is implemented. (Giannakourou G., 1994)

This is usually the case for all plans which aim at land development control and even at the definition of desirable/appropriate land uses. There is strong resistance from local people, owners of land, who deny any control over land. Local policy and decision makers often submit to these pressures. The problem becomes more acute in all coastal areas, where prospects for tourism development are high. Any kind of restriction to building up an area will confront local interests. Since there is no proper implementation mechanism or monitoring, it is often the case that people build in areas where they are not supposed to, or they occupy

more land than allowed. Bureaucracy also contributes to ineffective implementation and monitoring.

Programs related to the protection of coastal areas

Several initiatives have been undertaken, usually with the assistance of the European Union and its corresponding funding mechanisms. In particular, assistance has been provided through:

1. The Union's structural funds. Within this context the following activities/programs were undertaken:

Envireq Program, co-financed by the Greek government. Its principal targets exclusively related with coastal issues were:

- Reduction of coastal pollution (73% of the budget);
- Protection of coastal biotopes (11%).

The National Greek Program for the Environment 1990-93. The main actions were:

- Biotope protection;
- Control of water quality;
- Air pollution, etc.

These actions covered a wide range of environmental actions, not necessarily for coastal areas only.

- Regional Programs: Mainly to assure the development of environmental infrastructure.

2. The Cohesion Fund.

3. ACE/MEDSPA/LIFE: Mainly for water management, protection of endangered species, awareness-raising campaigns, etc.

Projects currently being funded under Life-Nature for coastal areas

- Management plan for the lagoon of Tsoukalio, Avleri, Rodia and Logarou in Amvrakikos bay, W. Greece.
- Messolongui wetland management programme.
- Establishment and first phase of operation of the Greek Biotope/Wetland Centre.
- Conservation programme for the Ionian sea region concerning habitats of species threatened with extinction.
- Greek national programme for the protection of monk seals.

Greece fully participates in all activities of the Barcelona Convention and the Mediterranean Action Plan. Recently the newly amended Land Based Sources protocol was adopted by the contracting parties. This legal document in conjunction with MAP phase II is expected to play an important role in coastal management on a national and regional level. MAP phase II and its related activities are much more action oriented than MAP phase I which focused on assessment. Furthermore the area coverage of the LBS protocol has been

extended to the hydrological basin of the Mediterranean encompassing the coastal zone. The application of these instruments is expected to play an important role in the sustainable development of coastal areas.

2.9 Examples of successful Environmental Coastal Management

The Evros river delta

The Evros Delta in the East of Greece is a unique wetland. In 1975 it was designated by the Greek authorities under the Ramsar Convention. This made it possible to prevent or slow down some of the drainage and agricultural improvement work that started back in the 50s. Due to all this previous work, the soil had lost its fertility, while salinisation of the water had appeared. Some remedial work was undertaken in the 80s, and at last, in 1987, the site was designated a Special Protection Area under the Directive on the conservation of wild birds. (Commission, 1995)

The case of Rhodes: Integrated Planning Study

The Mediterranean Action Plan (MAP) has been implementing in the Mediterranean region a number of area-specific projects, basically in areas which confront considerable environmental problems, entitled Coastal Management Programs (CAMP). The Integrated Planning Study for the island of Rhodes, being prepared within the CAMP "The island of Rhodes" has the nature of an "umbrella" document which integrates the results of other activities performed within this project (GIS, EIA, CCA, water resources management plan, solid and liquid wastes management plan, study on impacts of climatic changes, etc.)

The study is considered to be the first and major step towards the launching of the process of integrated coastal and marine areas management of the island of Rhodes.

The scope of the study was the:

- Identification of development and environmental issues.
- Definition of the most feasible future development of the island on the basis of an assessment of the capacity of natural resources.
- Development of proposals for spatial strategies of development along with appropriate management actions.

There is no implementation of the program.

National Marine Park of Alonnisos Northern Sporades

The National Marine Park of Alonnisos Northern Sporades is the first marine Park officially and legally established in Greece. The Park is a refuge for many types of fish -300-, waterfowl -up to 80 species, many of which are migratory-, reptiles, mammals, and in particular sea mammals. Among all the most interesting are the monk seal Monachus monachus, the red coral -Corralium rubrum- the Falcon eleonorae, the Aegean seagull -Larus aouduini- the Phalacrocorax aristotelis, the wild goat of Gioura -Capra hircus aegagrus- which are all considered as endangered species.

The attempts to establish the marine park date back to the early '70s, but it was only in May 1992 that the area was declared a National Marine Park by Presidential Decree 519/D (16/5/92).

Besides the Greek Government, special reference should be made to other non-governmental institutions such as the European Parliament and the Dutch MEP which contributed to both the establishment and the protection of the monk seal.

The establishment of the National Park aims to ensure:

- The protection, preservation and management of the flora, fauna and landscape of the broader area of North Sporades.
- The conservation of the monk seal.
- The conservation of other rare species.
- The sustainable development of the entire area.

The Park covers a total area of 2200 sq. km and is divided into two areas which include seven islands and 22 rocky islands and reefs. Besides the very positive initiatives taken so far, there is still a lot to be done to ensure long term sustainable development. The most important is the definition of the authority responsible for management of the National Marine Park. It should be noted that during the past few years several programs were carried out, several of which were financed by the European Union.

2.10 National Program for the Sustainable Development of Coastal Areas and Islands

To overcome chronic problems of coastal areas and islands, the Ministry of the Environment, Physical Planning and Public Works has initiated a process towards more effective coastal management. The new initiative provides for a high level National Committee for the Management of Coastal Areas and Islands, assisted by a Secretariat and several Task Forces at the Ministry level, with the participation of experts from research and academic institutions.

The initiative foresees the elaboration of a strategy for the sustainable development of coastal areas and islands, and the development of an Action Program for Coastal Areas and Islands.

The preparation of coastal policy will include:

- Definition of general and specific goals and objectives for sustainable development of coastal areas and islands.
- Delineation of the coastline and a critical zone along the national coasts, to be designated as national heritage to be preserved as an area of protection for natural ecosystems and public open space.
- Identification of a broader zone for coastal management to be delineated for all coastal areas:

    - In areas which face problems of pressure for development, the purpose of management will be to specify rules for the development of human activities ensuring the preservation of natural resources and ecosystems.

- In areas which face environmental degradation because of intensive development, the purpose of management will be environmental upgrading enhancing natural resources, protecting the function of ecosystems and upgrading human activities.
- In areas relatively unharmed by human activities, the purpose of management will be to ensure their protection as national reserves.

- For every type of coastal area desirable and permitted uses will be defined and adequate public access to the coast will be provided for.
- Preparation of a specific approval process for all significant projects to be located on the coast. This could be achieved by refining existing tools (EIA).

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TABLES

Table 1

The first fifteen cities of Greece by population size

CITIES	POPULATION (1991)
5. ATHENS*	3,096,775
6. THESSALONIKI*	377,951
7. PATRA*	155,180
8. IRAKLION*	117,167
9. LARISA	113,426
10. VOLOS*	77,907
11. IOANNINA	56,907
12. HALKIDA*	51,482
13. SERRES	50,875
14. HANIA*	50,077
15. TRIKALA	48,810
16. KATERINI	46,304
17. LAMIA	43,898
18. KALAMATA*	43,838
19. RHODES*	43,619

* Cities located on the coast

Table 2

Type of wetlands

Type of Wetland	Number per type	% of total number	Area (str)*	% of total area	Length (km)
-Deltas	12	3.2	680,300	33.58	-
-Marshes	75	19 8	58,326	2.88	-
-Lakes	56	14.8	597,673	29.50	-
-Lagoon	60	15.9	287,665	14.20	-
-Springs	17	4.5	1331	0.06	-
-Artificial	42	11.1	42,646	2.10	-
Lakes	25	6.6	3588,235	17.68	-
-Rivers	91	24.1	-	-	4268
TOTAL	378	100	2,026,176	100.0	4268

*str=1000 sq.m

Table 3

Geographical distribution of wetlands

	TYPE OF WETLAND					
	Deltas		***Lagoons***		***Estuaries***	
	Number	Area (str)	Number	Area (str)	Number	Area (str)
EAST MACEDONIA -THRACE	2	230,000	2	40,200	-	-
CENTRAL MACEDONIA	2	62,000	5	22,900	7	30,340
WEST MACEDONIA	-	-	-	-	-	-
THESSALIA	1	26,000	4	685	2	156
EPIRUS	4	247,000	3	2,130	1	400
IONIAN ISLANDS	-	-	10	21,145	4	236
WEST GREECE	1	66,500	9	170,000	5	3,870
STEREA	1	30,300	4	5,615	4	1,160
PELOPONNISOS	1	18,000	6	4,300	3	345
ATTICA	-	-	1	830	-	-
ISLANDS of NORTH AEGEAN	-	-	6	13,350	2	750
ISLANDS of SOUTH AEGEAN	-	-	7	2,520	-	-
CRETE	-	-	3	3,990	14	5,389

WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of ISRAEL

(Contributed by Ms Valerie Brachya and Mr Dror Amir)

NATIONAL REPORT of ISRAEL

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1. BACKGROUND INFORMATION

The Mediterranean coastline of Israel extends along 188 kms from Rosh Hanikra on the Lebanese border to Zikim on the border of the Gaza Strip. The coastline can be divided into four morphological sections according to physical characteristics and sedimentological properties:

1) Rosh Hanikra to Acco--a sedimentologically isolated region with abraded rocky platforms and narrow beaches;

2) Haifa Bay--bounded by the Acco promontory on the north and the Carmel mountain range on the south, the region consists of wide sandy beaches;

3) The Carmel coastal plane--between Caesarea and Haifa, the region consists of three low parallel ridges of calcareous sandstone, parts onshore and parts offshore with relatively narrow sandy beaches;

4) South of Caesarea--sandy beaches are occasionally interrupted by sections of calcareous sandstone cliffs up to 40 m high.

Most of the Israeli Mediterranean coastline falls within the Nile littoral cell in which quartz sediment is transported from the Nile Delta by longshore drift. The highest level of sediment flow is found along the southern beaches (estimated at 400,000 m^3 per year net north-east flow), reducing to 200,000 m^3 per year net north flow at Hadera, and ending at the sediment "sink" in Haifa Bay. Any offshore structure in this cell is likely to generate sand accretion on its southern side, and coastal erosion to the north of the structure.

The rivers flowing from the interior hill ranges to the Mediterranean shore are today mainly seasonal, flowing only in winter. They are of no major economic importance, but are features of natural value and, where not polluted, are significant breeding grounds for small-scale local fisheries.

Human activity along this Mediterranean coastline dates back to prehistory, and has left numerous onshore and offshore archeological remains. Due to the lack of natural bays (except for Haifa Bay), artificial construction was always necessary in this open shoreline to provide shelter against the stormy Mediterranean Sea. At least twelve coastal settlements with harbors are well known from earliest historic times along this intensively used maritime corridor. Special mention must be made of Herod's major artificial harbor at Caesarea which protruded some 450 m offshore--an outstanding engineering feat for that period. The modern deep water port of Haifa was constructed during the British Mandate in the 1930s. Tel Aviv and Jaffa have small harbors. The second deep water port along this coastline was constructed at Ashdod in the 1960s.

Roughly 70% of Israel's population, which reached over five million in 1995, lives within 15 kms of the Mediterranean coastline. Intensive settlement along the coastal strip over the last 50 years now dominates the land use pattern of the area, particularly the two major population centers of Tel Aviv and Haifa. This narrow coastal strip is the focus of the country's economic and commercial activity.

Haifa Bay offers protected water for the development of an international port, and is the primary center of heavy industry including oil refining and a steel mill.

Ashdod, just south of Tel Aviv, now competes with Haifa Port for international shipping. Ashdod Port handles container shipments, citrus exports, phosphates from the Dead Sea and other bulk cargo. The second oil refinery in Israel was constructed at Ashdod, and the town is the second major center of heavy industry along the coast.

Tel Aviv, with an expanding metropolitan area, is the major commercial center of Israel and the focus of the country's transportation networks. Tel Aviv also leads in tourist development along the coastline, together with tourist resorts at Nahariya, Haifa, Netanya, Herzliya, Bat Yam and Ashkelon Marinas have recently been constructed at Herzliya and Ashkelon, in addition to smaller harbors at Acco, Jaffa and Tel Aviv

Tourism is a major economic sector along the coast, not only in the urban tourist resorts but also at newly developing rural sites, intending to offer a different type of accommodation with particular emphasis on "recreational villages" in a rural setting. Several such centers have been established and others are being planned

The coastal strip also contains the most fertile agricultural land of Israel, especially for citrus production. There is severe conflict between the expansion of urban settlements along the coastline and the preservation and protection of fertile agricultural land.

The main transportation arteries run very close to the coastline for much of its length, particularly from Tel Aviv northwards. The coastal highway and the railway run on an almost parallel alignment along the calcareous sandstone ridges in order to avoid encroachment on agriculturally productive land

Most of the country's electricity supply is generated by power stations on the Mediterranean coast, two major coal-fired power stations at Hadera and Ashkelon, and smaller oil-fired power stations at Haifa, Tel Aviv and Ashdod.

In view of the high concentration of population and economic activity in the coastal strip, development policies in Israel have attempted to restrain further expansion of the major urban settlements along the coastline. Focus has been on promoting the establishment and expansion of urban and rural settlements in the underdeveloped northern and southern regions of the country. Encroachment on agricultural land has been restrained, although not prevented, and linear development along the coastline has been restricted.

Much of the coastline is designated for various types of public open space Areas of particularly high natural value, mainly river mouths and rocky shores, have been designated as Nature Reserves. Beaches of high value for recreation in natural surroundings and sites of archeological interest for visitors have been designated as National Parks

Marine reserves have been designated or are in the process of designation They include offshore rocky areas rich in marine flora and fauna, and offshore rocks and sections of sandy shores important for sea turtles

2. POLICY RESPONSES AND PRACTICES

The main framework for coastal zone management in Israel is the Planning and Building Law. Through a hierarchy of national, regional and local planning authorities, a special committee for approving offshore development and a hierarchy of national, regional, local and detailed plans, onshore and offshore development is subject to a series of "checks and balances" to bring together requirements for development with requirements for resource conservation.

In 1970, the National Planning and Building Board recognized that Israel's coastlines should be treated as resources of national value, and issued an order for the preparation of national plans for all its sea and lake shores the Mediterranean Sea, the Red Sea (Gulf of Eilat/Aqaba), the Sea of Galilee and the Dead Sea.

The first stage of the National Outline Scheme for the Mediterranean Coast was approved in 1983. The main objectives of the plan were to prevent development which does not need proximity to the coast, to protect large sections of the coastline as nature reserves, national parks and coastal reserves, and to allocate coastal areas for tourism and recreation activities. The masterplan included a highly effective clause prohibiting development within 100 meters of the coastline. Relaxation of this regulation is occasionally permitted only if approved by the National Board.

To help provide a comprehensive long-term guide to planning policy, beyond the general guidelines in the approved masterplan, the National Board commissioned a more detailed document for the resource management of the Mediterranean coastline for tourist and recreation activities. This coastal resource management plan, prepared by the Ministry of the Environment, was recently submitted for approval to the National Board.

A multi-disciplinary team of landuse planners, geologists and ecologists prepared base surveys of coastal resources and prepared guidelines for some of the main resource management issues:

* Sand supply Because sand supply along the shore may be limited, existing wide sandy shores should be designated only for those activities that require such natural shores. Other activities should be directed to non-sandy shores.

* Offshore structures Offshore structures change near-shore sand and water flows, and may result in the accumulation of sand and/or erosion of the shore Any proposal for offshore structures should therefore be evaluated carefully. The development of offshore structures should be limited to certain designated sections of the coast.

* Cliff erosion Because cliffs are in an active state of erosion, structures should be set back far enough from the cliff edge to reduce the risk to property and to provide an area within which measures may be taken to stabilize the cliff Offshore structures along the cliff shore may result in an increased rate of cliff retreat.

* Special geological features Special features should be protected from development (e.g., active sand dunes, rock formations).

* Offshore rocks Offshore rocks often provide a natural form of shore defense against erosion. Where this is the case, the rocks should not be removed (e.g., to improve swimming beaches)

* Natural coastal processes Planning and construction proposals should be consistent as far as possible with these natural processes. Those which require an engineering solution to prevent damage by natural coastal processes should be avoided.

The multidisciplinary teams prepared ecological guidelines for the Resource Management Plan, including the following principal recommendations:

* Rare and unique habitats As a result of heavy human disturbance, habitats once typical are becoming rare. Thus, representative habitats (kurkar ridges, sand dunes, carob and pistachio woodlands) should be protected from the impacts of development.

* Rocky shore habitats These habitats are rich in invertebrate life and need both onshore and offshore measures for protection.

* Important biotic features Restrictive conditions on activities and development may be sufficient to enable important biotic features and habitats to survive outside the boundaries of nature reserves.

* Areas adjacent to nature reserves Recreation areas adjacent to nature reserves or sensitive habitats should be designated for low intensity activities.

The coastal resource management plan is based on principles of suitability and sensitivity of coastal resources. The dominant principle adopted for resource management of the coast was the definition of intensity of development. A natural, undeveloped swimming beach offers a totally different experience from an urban beach with multiple visitor facilities. Similarly, overnight accommodation at a village camping site is a different experience from accommodation at a central urban hotel. Four levels of development were therefore defined for beaches and their immediate hinterland, four levels of intensity of overnight visitor accommodation, and three levels of development of hinterland day-visitor areas.

The overall national policies proposed for resource management of the coast include:

1) Development which is not for recreation or tourism should not be permitted along the coast and its immediate hinterland;

2) Policies for resource protection should range from absolute protection within a designated reserve to the identification of sensitive resources to be considered within the detailed plan for site development;

3) Policies for recreation and tourist development should ensure that opportunities for a variety of daytime activity and overnight accommodation experiences are made available to the entire population of the country;

4) Recreation and tourist development of the hinterland should be confined to centers. In order to protect as much open space as possible, linear development along the coastline should not be permitted;

5) Highly intensive uses should be confined to existing urban centers;

6) Sites not previously developed where resources are identified as having recreation potential were proposed for low intensity levels of development;

7) Offshore construction for recreation and water sport activities should be restricted to urban centers. Each resort town was allocated a level of development which permits construction of a marina (the location of marinas is now in question following the erosion generated by two marinas permitted);

8) On the whole, the Mediterranean shore offers potential for the development of recreation opportunities far beyond the needs or forecasted demands of the population. The only area where resource potential is limited and will soon be scarce is the Tel Aviv shore. No development should be permitted which further reduces the limited potential available there;

9) A public footpath should be designated along the coastline to ensure public access by foot to and along the coastline.

The principles outlined above have been incorporated into the newly revised Tourist National Outline Scheme, prepared by the Ministry of Tourism, which has been submitted for approval to the National Planning and Building Board.

The implementation of plans and policies is the responsibility of the planning authorities at local, district (regional) and national levels. In addition, any proposal which includes offshore development requires the approval of the national-level Committee for Territorial Waters. *The planning authorities are operated by the Ministry of the Interior.* Representatives of the Ministry of the Environment are members of the committees at all levels. The local-level committees are largely composed of locally elected representatives, whereas the district and national committees are largely composed of central government representatives. Policy for the Mediterranean coastline has been largely formulated at national level since the coastline is divided between 25 local authorities and between five district authorities.

One of the most important tools in the land use planning process is the environmental impact statement (EIS). EIS has been used in Israel from the mid-1970s; regulations governing the requirements of EIS were promulgated under the authority of the Planning and Building Law in 1982. The regulations specify in which cases an EIS is mandatory and in which cases it is optional, upon request by the planning agencies (screening). An EIS is obligatory for four kinds of projects: power stations, airports, ports and hazardous waste disposal sites. The regulations strongly urge the preparation of an EIS for landing strips, marinas, main water carriers, dams and reservoirs, sewage treatment plants, quarries and waste disposal sites if the planning authority considers that significant environmental impacts may occur beyond the immediate vicinity of the project. In actuality, the regional planning authorities regard this recommendation as mandating an EIS, since all such projects must have significant impact beyond the immediate vicinity. The regulations also require an EIS if a proposed industrial plant is situated outside a designated industrial area and its location, scale or operation may generate adverse impacts beyond the immediate vicinity. While EIS for major urban and interurban roads are not included in the statutory list, planning authorities nevertheless require the preparation of EIS for these projects. In fact, roads and associated facilities form the largest group of EIS commissioned.

In addition, any planning authority (national, regional or local) may require an EIS on any plan expected to have environmental implications, and every ministerial representative on the national, district or local planning levels may require an EIS for any plan under discussion. Since the Ministry of the Environment is represented on all the national and regional planning authorities, it can exercise its right to require an EIS if the authorities themselves do not do so.

Since 1983, the coastal masterplan has specified a requirement for environmental impact statements on all development projects in the coastal zone unless exempted by a decision of the planning authority. While this has not always been implemented, EIS have been prepared for marinas, port expansion, breakwaters, and tourist and hotel projects along the coastline. The regulations specify that EIS be prepared in accordance with guidelines (scoping), formally issued by the planning authority but prepared by the Ministry of the Environment. The Ministry invests special efforts in the preparation of appropriate plan-specific guidelines to ensure that the EIS, when submitted, will be a useful tool to decision makers. Experience over the past few years shows that specifically tailored guidelines produce useful EIS documents which are not hampered by generalized, irrelevant data.

An EIS includes five sections as follows:

1) A description of the environment to which the plan relates, before its implementation;

2) Specification of reasons for preference of the proposed siting of the plan and activities resulting from its implementation;

3) A description of the activities resulting from implementation of the given plan;

4) Specification and assessment of the projected environmental impacts resulting from the implementation of the plan;

5) Proposed conditions to be included in the plan.

The developer is responsible for preparation of the EIS in accordance with the guidelines as prepared. While the regulations do not specify how an EIS should be reviewed, the Ministry of the Environment has examined all EIS since 1987. Experts review each EIS and the Ministry issues an opinion which includes a summary of the main findings of the EIS, the Ministry's conclusions about the assessment, and a list of recommendations for the planning authority. In most cases, the planning authority welcomes the professional advice it receives from the Ministry, and incorporates its recommendations in its decision concerning the plan.

Public participation in the planning and EIS process are limited to the right to submit an objection during the period in which the plan is deposited for public comment. This right of objection does not exist at the national level outline schemes Increasingly, active public participation is either through national level NGOs, particularly the Society for the Protection of Nature in Israel (SPNI), and through local public associations established in response to a particular project. The SPNI is represented on the National Planning and Building Board, and is an active participant in the preparation of national outline schemes for the coastal areas and for tourism.

Another NGO--Adam, Teva VeDin--concentrates on the legal aspects of planning proposals, and recently obtained an important decision from the District Court to stop further steps to approve a marina on the Tel Aviv shore until all EIS processes will be completed.

3. EXAMPLES OF COASTAL MANAGEMENT

3.1 Public Awareness Programs for Coastal Management

Israel's Mediterranean and Red Sea coastlines are among the country's most valuable natural assets. Their protection from pollution and from the often conflicting demands of urbanization, industrialization, agriculture, recreation and tourism is of utmost importance. In order to bring about significant improvements in the quality of the environment in Israel, several areas, including the coastlines, have been targeted for priority action By promoting public awareness, both at the government and local level, environmental issues affecting coastal management have resulted in the initiation of environmental campaigns and the implementation of environmental projects.

The issue of cleanliness of the public domain, especially the cleanliness of beaches, was targeted as a priority action for public awareness and involvement. Solid waste, mainly plastic items, drifted by currents or left behind by recreationers and bathers, contributes significantly to the aesthetic degradation of the shores. While local authorities are responsible for the regular cleaning of all authorized bathing beaches in Israel, these beaches constitute only a small percentage of the Mediterranean coastline (25 kilometers). Since 1984, the Ministry of the Environment has financed the cleaning of all open beaches twice during each bathing season. The cleaning itself is conducted by local authorities under the supervision and guidance of marine pollution inspectors

In recent years, several large-scale volunteer cleanup campaigns have been undertaken, both to clean beaches and to increase public awareness. In June 1993 and 1994, in conjunction with Israel Environment Week, thousands of volunteers--children, soldiers, government officials, diplomats, the general public and staff members of the Ministry of the Environment and Society for the Protection of Nature in Israel (SPNI)--flocked to some 40 kilometers of shoreline to take part in massive cleanup campaigns. Last year, in Israel's largest-ever volunteer beach cleanup, some 6,000 volunteers collected over 100 tons of garbage, in one day alone This year, over 20 tons of trash were collected by over 1,500 volunteers, most of them students.

To facilitate the maintenance of cleanliness throughout the entire year, the Ministry of the Environment has distributed some 1,800 waste collection receptacles along the country's 125 kilometers of unauthorized beaches. Calling for the public's help in maintaining clean beaches, volunteers from the SPNI's youth clubs regularly distribute garbage bags to bathers during the summer season. Within the framework of International Beach Cleanup Day that took place last September, some 45 states, including Israel, launched volunteer coastal cleanups.

This year, a unique innovation was introduced into the beach cleanup campaign: an underwater cleanup project in Eilat to rid the water of unsightly and environmentally-harmful waste. The campaign, organized by the Ministry of the Environment and the Israel Diving Federation, with the active cooperation of Eilat's diving clubs, included the participation of hundreds of divers along an 8-kilometer stretch.

3.2 Wastewater Treatment and Reuse

The combination of severe water shortage, contamination of water resources, densely populated urban areas and highly intensive irrigated agriculture make it essential that Israel put wastewater treatment and reuse high on its list of national priorities. Effluents constitute the most readily available and cheapest source of additional water, and provide a viable partial solution to Israel's water scarcity problem. Of the total volume of wastewater produced in Israel, about 90% is collected by means of central sewage systems, 80% is treated and nearly 70% is reclaimed for reuse, mainly for the irrigation of non-food crops. By the year 2000, recycled wastewater is expected to provide up to 400 MCM of water per year for agricultural purposes.

The main wastewater treatment and reuse plant on the coast of Israel is the Dan Region Wastewater Treatment Project. Covering an area of 220 km^2, which encompasses the metropolis of Tel Aviv-Jaffa and seven other municipalities, the plant is responsible for treating a third of the country's wastewater. In 1993, 87 MCM of wastewater were treated at the plant, of which 75 MCM were recharged into local aquifers that would be used for agricultural irrigation in the Negev. In the Haifa region, another large-scale project treats about 38 MCM of wastewater yearly. The technique uses an integrated technology of activated sludge and trickling filter which produces medium-quality effluent (60-80 BOD/SS). The effluent is piped 30 kilometers eastward to irrigation reservoirs that serve the Jezreel Valley. There, water quality further improves after a long retention time in effluent reservoirs.

Increased awareness is resulting in improvements in existing plants and in the planning of new treatment plants which conform to new Israeli standards on effluents. Effluent regulations, promulgated in 1993, require secondary treatment to a level of 20 mg/liter BOD and 30 mg/liter suspended solids as a minimum baseline level. Higher degrees of treatment are required by the Ministry of the Environment if effluents are to be discharged into rivers or the Mediterranean Sea rather than for agricultural use. In such cases, nutrient removal and disinfection are prescribed.

At the request of the Water Commission, Israel's water planning company, Tahal, has recently prepared a national masterplan for effluent reclamation, describing present conditions and prescribing a program for future development. The plan constitutes a framework for preparation of national and regional masterplans for effluent reclamation including flow forecasts, principal treatment sites, principal schemes planned, projected interregional transfers and estimates of investments in effluent reclamation in Israel. The aim is to achieve maximum treatment in order to prevent environmental nuisances and to enable effluent reuse in agriculture throughout the country.

3.3 Solid Waste Management

Population growth, rising standards of living and changes in consumption patterns have resulted in the discharge of increasing quantities of waste. Each person in Israel produces some 1.6 kilograms of solid waste a day. The total quantity of waste produced in the country annually by a population of about 5.3 million is equal to 3.1 million tons--with quantities increasing at an average rate of 2% yearly. In a country with limited land resources and ever-increasing quantities of refuse, sound management of solid waste is imperative.

In 1993, some 96% of Israel's domestic waste was landfilled in about 500 waste dumps, most of which were unregulated and close to reaching full capacity. The most difficult

problem lies in Hiriya, a landfill which receives about 2,500 tons of refuse a day from the greater Tel Aviv metropolitan area. This landfill, which will soon reach full capacity, is plagued by many problems associated with improper waste disposal.

In June 1993, the government took a landmark decision designed to expedite the establishment of central landfills, close hundreds of illegal waste dumps and create an infrastructure for environmentally safe solid waste disposal both in the short and long terms. Specifically, the decision calls for closure of most of the country's small garbage dumps, as well as the Hiriya landfill, within the next three years and for their replacement by a few authorized regional sanitary landfills. It is estimated that by 1997, some 80% of the country's waste will be safely discarded at environmentally safe landfills.

The impending closure of hundreds of waste dumps and their replacement by a few regional and central landfills, coupled with ever-increasing requirements for high environmental standards in landfilling, will significantly increase the cost of solid waste disposal. Calculation of the true economic and environmental costs of landfilling is expected to expedite the move to low- or non-waste technologies and to encourage the implementation of waste reduction, reuse and recycling options. To facilitate these developments, Israel is redoubling its efforts to promote recycling by every possible means--research, legislation and pilot projects. The current goal is to reach a 10% recycling rate in 1996 and 25% by the year 2000.

3.4 Alternative Sources of Electricity Production

The country's indigenous energy resources are limited little natural gas has been found and even less oil. However, Israel is a world leader in development and utilization of solar technology. Solar energy provides about 3 5% of the gross energy consumption, used mostly for domestic water heating. Israel also has developed flat solar water heaters for domestic use that are now required in all new buildings, solar ponds and the technology of parabolic troughs. Much of the work on solar energy is being conducted at two of Israel's major research centers: the Weizmann Institute of Science and the Ben-Gurion Solar Energy Research Center.

3.5 River Restoration

With the exception of the upper part of the Jordan River and its tributaries, nearly all rivers in Israel are polluted. Whether as a result of industrial discharge, municipal sewage or water catchment, rivers have either dried up or become drainage and sewage conduits. Public investment is now being put into sewage treatment plants and the Ministry of the Environment is taking steps to rehabilitate Israel's polluted rivers through the establishment in 1993 of a National River Administration to coordinate the efforts of the various bodies involved in working to clean up rivers, to restore landscapes and to rehabilitate ecosystems, flora and fauna for purposes of recreation, tourism, education and research. The Administration, consisting of representatives from the Ministries of Environment, Tourism and the Interior and various non-governmental environmental organizations, has formulated a model for river rehabilitation and established criteria for setting priorities Major restoration work is currently being carried out in the Yarkon, Lachish, Kishon, Hadera, Alexander and Ayalon Rivers.

The Yarkon River:

The Yarkon River, the longest of Israel's coastal rivers flowing 27 kilometers through Tel Aviv, is one of the most prominent examples of a badly polluted river under restoration. Before its waters were diverted in 1956, some 220 MCM of fresh water flowed in the Yarkon, supporting fishing and a rich water vegetation. Following diversion, sewage was introduced, and the natural habitat of plants and animals was destroyed In an effort to improve the state of the river, a Yarkon River Authority was set up in 1988. The authority, consisting of representatives of 19 organizations and local authorities, is responsible for cleanup, restoration and development of the river, making it suitable for leisure and recreation. Administrative and legislative measures are being taken to ensure that sewage is not discharged into the river, and monitoring is carried out to ascertain that vegetation and fish are not damaged. The success of the rehabilitation program is already evident in the return of flora and fauna to a restored seven-kilometer stretch and in the development of boating and fishing. Other areas along the river have been transformed into national parks for the public

The Kishon River:

The Kishon River, which starts in the Jezreel Valley and flows into the sea at Haifa, is one of the most polluted of Israel's rivers Sewage, pesticide runoff and industrial wastewater from some of the country's biggest chemical plants ends up in the river. Analyses carried out on sediments in the river found high concentrations of heavy metals, originating in the industrial effluents which have been discharged into the river for dozens of years. The creation of a Kishon River Authority was approved in May 1994 to begin dealing with the tens of thousands of tons of sludge which have entered the river. Upgrading of the existing Haifa wastewater treatment plant, at a cost of $27 million, will considerably improve water quality in the Kishon. Due to the complexity of the ecological system of the Kishon River and Haifa Bay, the European Investment Bank is financing a feasibility study on the carrying capacity of Haifa Bay and on the rehabilitation of the Kishon River.

WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of MALTA

(Contributed by Mr Louis Vella and Mr Joe Sultana)

NATIONAL REPORT OF MALTA

(Contributed by Mr Louis Vella and Mr Joe Sultana)

Located in the Mediterranean Sea, just south of Sicily, the Maltese archipelago basically consists of three islands, Malta, Gozo and Comino. Their total population is about 366,000. The largest island of the group is Malta, from which the archipelago takes its name. It has a population of just over 320,000. Valletta,the capital, is the cultural, administrative, and commercial centre of the archipelago. Malta is well served with harbours, chief of which is the Valletta Grand Harbour

The second largest island is Gozo. It is topographically quite different from Malta, and is quaintly attractive for its less industrialised way of life. Gozo can be reached from Malta by ferry-boat. Cominotto, Filfla and St Paul's Islet are the other major features of the archipelago. Of these, only Comino, straddled between Malta and Gozo, sustains a very tiny population. Turned into a popular resort because of a couple of very fine beaches, Comino can be reached by boat or by excursion ferries during the summer months. The total length of the shoreline is about 190 km.

The distance between Malta and the nearest point in Sicily is 93 km. The distance from the nearest point on the North African mainland (Tunisia) is 288 km. Gibraltar is 1,826km to the west and Alexandria is 1,510 km to the east.

This strategic position has allowed Malta to develop as an important trading post.

The islands have been inhabited for about 7000 years and contain the oldest free standing constructions in the world. The indigenous population of some 366,000 with an overall density of 1158 persons per km^2 makes us one of the most crowded countries in the world.

Much of the coastline is accessible, that on the North / East side much more easily than the West side, and the waters are generally safe and clean and the coast is within easy reach of all the settlements.

It is therefore understandable that the local population make heavy use of the coast for economic and recreational purposes. The coastal zone and the surrounding sea are for Malta, what *open spaces* are for other bigger countries.

The coastal areas of the Maltese Islands have played a very important role in both the social and economic development of the country, and probably forms our most important natural resource. The geological formations, in particular the natural harbours and bays, have been extensively used for defence and for commercial (including tourism) development. This has given rise to an expansion of settlements along coastal areas which is mostly evident on the gently sloping north east coast of the islands.

In the last years over one million tourists have been visiting the islands annually mainly during the summer months to enjoy amongst other attractions, our sea. Apart from the pressures of the tourist and related industry on the coastal areas, other marine related industries, such as ship repairing and building, cargo-handling, transhipment activities, bunkering, power generation, yacht-berthing, salt extraction, fishing and fish-farming, are all located on the coast. The coastline also contains five very large Reverse Osmoses Plants

and associated well fields, from which Malta produces 60% of its potable water. Parts of the coast are also residential.

The main pressures from development and incompatibilities of use on the coastline fall within the context of the following more serious problems :

(a) Major expansion of urban settlements.
(b) Industrial installations including fish farming.
(c) Tourist development.
(d) Waste and sewage pollution.
(e) Abandoned agricultural land.
(f) Active quarries.
(g) Threats to natural ecosystems.

In spite of all the pressures mentioned above the Maltese coasts can still provide areas of scientific value, supporting unique habitats such as sea-cliffs, sand dunes, salt marshes, coastal clay slopes, shallow water algael forests and sea-grass meadows. The flora and fauna of coastal cliffs includes some of the rarest and most scientifically interesting species of Maltese plants and animals.

The coastline of the Maltese Islands can be generally classified into two distinct types, a gently sloping rocky coast on the north east side and a steep cliff coastline on the south west side. The following data have been compiled from the coastal zone survey which was carried out in 1989. Results for the main island of Malta and the sister island of Gozo (including the third largest island Comino) have been calculated separately.

Coastline obscured by development :	Malta 30.5%, Gozo & Comino 7.5%.
Lowland coastline : (unobscured by development)	Malta 30.5%, Gozo & Comino 16%.
Accessible coastline :	Malta 50%, Gozo & Comino 26%.
Tourism-dominated coastline :	Malta 35%, Gozo & Comino19%.
Industry-dominated coastline :	Malta 8%, Gozo & Comino 4.5%.
Coastline frontage with maritime activities :	Malta 16.5%, Gozo & Comino 4.5%.
Coastal zone agriculture :	Malta 23% (in use 11% abandoned 12%) Gozo & Comino 57% (in use 16% - abandoned 41%).
Coastal zone vegetation (green all year) :	Malta 9%, Gozo & Comino 8.5%.
Coastal zone dominated by pollution (oil & other discharges) :	Malta 3%, Gozo & Comino 1.5%.
Coastline of international scientific importance :	Malta 0%, Gozo & Comino 2.5% (Inland Sea & Dwejra)
Coastline of national scientific importance :	Malta 6%, Gozo & Comino 6%.Coastline of international importance : Malta 5% (fortifications) Gozo 2.5% (Inland Sea & Dwejra).
Coastline of national importance :	Malta 13.5%, Gozo & Comino 14%.

Six coastal zone black spots related to pollution and quarrying requiring immediate action were noted for Malta whilst two were noted in Gozo & Comino.

During the survey mentioned above two main categories of important coastal sites have been recognised - sites of ecological importance, supporting habitat types which are rare in the Maltese Islands, and sites of scientific importance, supporting endemic or rare species. The following data have been recorded :

- Low-lying rocks are located mainly on the north east coasts of the three main islands.
- Coastal cliff communities are located on the south, southwest and west coasts of Malta and Gozo. There are many endemic plant taxa including 2 belonging to monotypic genera.
- 2.5% of the coastline has sandy beaches. Dunes ecosystems or remnants are located at 3 sites on Malta and at 2 sites on Gozo & Comino.
- Saline marshland communities and 3 transitional wetlands are located along the coastline.
- 58 sites of scientific interest are located on Malta and 15 on Gozo & Comino. There are also the whole islets of Filfla, Il-Gzejjer Selmunett, Cominotto and Fungus Rock.

In recent years an active awareness for the need of protecting and conserving the coastal environment has been created.

Malta is party to a number of international treaties concerned with the protection of the Mediterranean marine environment. Malta became a party to the 1976 Barcelona Convention for the Protection of the Mediterranean Sea against Pollution and its protocols in February 1978, acceded to the 1982 Geneva protocol on Mediterranean Specially Protected Areas in January 1988, acceded to the Ramsar Convention on Wetlands of International Importance in September 1988, acceded to the 1972 London Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter in January 1990, and is a party to the 1978 MARPOL Convention.

In Malta the coastal strip from the sea shore up to three meters inland was traditionally offered protection from development and is accessible to the general public. In some instances this policy has not been strictly adhered to, particularly in respect to industrial development and some touristic development. There is as yet no specific legislation protecting coastal areas. Protection is afforded by virtue of recent initiatives by the Government which include the 1991 Environment Protection Act and the 1992 Planning Development Act as well as the adoption of a Structure Plan for the Maltese Islands. The Environment Protection Act is an enabling law which empowers the Minister responsible for the Environment to take all measures, both preventive and remedial, that may be necessary for the protection of the environment of Malta and to protect the environment when deciding on economic and social matters.

Both pieces of legislation provide for ample participation by the public, interested NGO's and pressure groups in the development process, principally in the EIA and public hearing processes. The process of development is well monitored in Malta. Both the Planning Authority as well as my department have an inspectorate which overseas such

activities to ensure compliance with development permits. NGO's and the public are also active in this area and infringements are quickly brought to attention.

As a priority action my department makes a continuous effort to keep environmental matters to the fore in the public agenda. This includes a number of formal and informal educational campaigns to develop awareness in this and other environmental concerns.

Our success in this area, over the last decade, includes the creation of two wetland areas contagious to the coast, one at Ghadira and another more recent one at Simar. Both are RAMSAR sites.

Other recent advances have been in the declaration of adjacent small islands in the Maltese archipelago as nature reserves. These include Filfla, which is a strict reserve since 1987, and Fungus Rock, another strict reserve since 1992. The islands of Selmunett were also declared a nature reserve with limited public access in 1993. All these reserves contain important examples of flora and fauna.

My department is currently concluding a wide consultation exercise with all interested parties so that we may create our first contiguous land and marine reserve at Dwejra in the island of Gozo.

The Structure Plan is more specific regarding future protection of the Coastal Zone. It carries several policies awaiting implementation which will include:

(a) a coastal zone management policy will be established as a matter of high priority;

(b) a subject plan will be prepared for coastal zone management to include both the conservation of this important resource and improved facilities for its enjoyment by the public;

(c) public access around the coastline immediately adjacent to the sea or at the top of the cliffs will be secured. This will include the taking of shore lands into public ownership as well as the acquisition of illegal developments and encroachments;

(d) a national system of marine conservation areas will be established; and

(e) no form of permanent construction will be allowed in sandy coastal areas and existing constructions will be removed wherever practical.

JOURNEES D'ETUDE SUR LES POLITIQUES
DE DEVELOPPEMENT DURABLE DES ZONES COTIERES
DE LA MEDITERRANEE

26-27 avril 1996 - Ile de Santorin, Grèce

Rapport National du MAROC

(Avec la participation de M. A. Sahibi et Mme Kh. Gardi)

RAPPORT NATIONAL DU MAROC

(Avec la participation de M. A Sahibi et Mme Kh. Gardi)

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AVANT-PROPOS

Le Maroc, situé au carrefour des voies maritimes internationales, bénéficie d'une position géographique privilégiée en tant que riverain du Détroit de Gibraltar et détenteur d'une double façade maritime atlantique et méditerranéenne, s'étendant sur près de 3500 km.

L'importance d'un tel espace littoral, aussi riche qu'étendu, est non seulement stratégique, mais aussi vitale sur le plan économique. En effet, sur les sept régions économiques que compte le pays, six ont un accès direct à la mer et sont, de ce fait, largement dépendantes de leurs côtes pour l'accomplissement de leurs activités socio-économiques.

Ecosystème fragile, le littoral est une zone d'interpénétration profonde de la terre et de la mer, qui est soumise à différentes atteintes perturbatrices.

En effet, les zones côtières sont constamment menacées de dégradation et de destruction, sous l'effet conjugué de la pression humaine grandissante, de la poussée urbanistique accélérée et de la pollution à la fois tellurique et pélagique (d'origine marine).

Convaincu de l'importance de la préservation de l'environnement en général et de la zone littorale en particulier, dans le développement durable du pays, le Maroc a engagé une politique qui vise à réconcilier les besoins immédiats d'une croissance économique soutenue et la nécessité de préserver ses ressources naturelles.

Ce rapport présente succinctement les actions engagées par le Maroc dans ce domaine.

Une première partie sera consacrée à la définition de la problématique environnementale du littoral en relation avec les activités socio-économiques de cette zone.

La seconde partie s'attèlera à présenter les actions engagées par le Maroc pour la préservation du milieu littoral.

I. PRESENTATION GENERALE DU LITTORAL MAROCAIN

1 GENERALITES

1.1 Littoral atlantique

La côte atlantique qui s'étend sur environ 3000km, joue le rôle du pôle structurant de l'économie nationale, vu son poids démographique, économique et sa fonction dans l'organisation de l'espace national.

En effet, elle concentre les principales agglomérations du pays, les densités démographiques rurales les plus élevées, les réseaux d'infrastructure et de communication les plus denses: aéroports, ports, réseau ferroviaire, réseau routier, pour ne citer que ces derniers, ainsi que les principales activités économiques: industrie, tourisme, commerce de gros, sociétés, grandes banques, principales universités et les plus importants instituts et écoles de formation des cadres.

La zone bénéficie également d'un important réseau hydraulique, constitué du Loukkos, Sebou, Bouregreg, Oum-Erbia, Tensift et Sous-Massa. Ceci a permis le développement de plusieurs périmètres irrigués et l'extension de la moyenne et petite hydraulique

En outre, la diversité du climat et la nature du rivage dont le tracé est fort variable d'un domaine géomorphologique à un autre: plages sableuses dans les zones basses (au nord et au sud) et plages peu étendues au pied des falaises (zone centrale), ont permis la formation de riches zones d'estivage.

La richesse du milieu est également liée à la présence sur le littoral de diverses ressources de grande importance écologique Il s'agit, en particulier, de la forêt de la Maamora, de l'Arganier, d'Essaouira et d'Agadir (unique au monde), des lacs et des lagunes d'importance internationale: Merja Zerka de Moulay Bousselham, le lac de Sidi Boughaba, la lagune de Oualidia, l'embouchure de l'Oued Massa et la lagune de Khénifiss.

1.2 Littoral méditerranéen

La façade méditerranéenne qui s'étend de Tanger à Saïdia sur environ 460km, présente des aspects très fortement contrastés.

La géographie, l'histoire et la nature des aménagements permettent de distinguer trois zones:

- **La côte méditerranéenne occidentale**

Elle couvre les provinces de Tanger et de Tétouan. De Tanger à Sebta, la côte est accidentée, elle est faite d'une succession de caps et de baies. La couverture végétale ne subsiste que sous forme de maquis. De Sebta à Azla, la côte est basse et marécageuse.

La Méditerranée occidentale constitue la partie la plus urbanisée et où les conflits entre le tourisme, l'agriculture et l'industrie se posent avec plus d'intensité.

- **La côte méditerranéenne centrale**

Elle s'étend de Oued Laou à l'embouchure des oueds Nekkour et Rhiss sur une longueur d'environ 150km.

Les excès de la topographie ont fait de ce secteur un espace enclavé et économiquement marginalisé.

En effet, le littoral est dominé par de fortes collines et des falaises abruptes qui ne dégagent que des plages étroites de galets et des petites plaines alluviales, à l'exception de celle de l'Oued Laou et de Oued Nekkour (environ 6000 ha) en majorité irriguée.

Le conflit est davantage ici entre l'importance des potentialités de la zone: tourisme (balnéaire, de montagne, d'hiver), arboriculture, pêche, chasse, élevage et le niveau de développement économique.

- **La côte méditerranéenne orientale**

Elle couvre le littoral de Nador à Saïdia et comprend des zones assez isolées (de Oued Nekkour au cap des trois fourches). La côte est faite de successions des dernières montagnes rifaines, des cuvettes, des plaines et des massifs volcaniques. Elle est largement ouverte vers l'intérieur, facile d'accès et les potentialités à valoriser sont diverses et importantes.

Enfin, il est à noter que la zone du Nord recèle une dizaine de sites d'intérêt biologique et écologique, notamment le parc national d'Al Hoceïma, la lagune de Nador, la lagune de Smir, l'embouchure de la Moulouya.

2. URBANISATION ET POPULATION

Un des phénomènes majeurs qu'a connu le Maroc au cours de ce siècle et surtout pendant les trois dernières décennies, est incontestablement le rythme accéléré de son urbanisation et la diffusion progressive du phénomène urbain à l'ensemble de la société.

Cette urbanisation accélérée et massive est souvent non contrôlée, anarchique voire irrégulière, ce qui se traduit par une nette dégradation de l'environnement urbain, de l'environnement en général et du littoral.

Quant à la population de la zone côtière, le tableau ci-après indique qu'elle représentera en l'an 2000 plus de 50% de la population du Maroc alors qu'en 1982, elle ne représentait que 46%. On constate aussi que la population littorale a augmenté en moyenne de 2,77% par an alors que la population totale du Maroc n'augmentait que de 2,5% par an en moyenne pendant la même période.

Année	Population littorale (millions de personnes)	Population littorale par rapport à la population totale du Maroc (%)
1982	9,4	46,0
1992	12,3	48,2
2000	14,8	50,0

Source: CERED, 1993.

2.1 Littoral Atlantique

L'accélération de l'urbanisation s'est opérée dès les années 30 et a connu un véritable essor au cours des trois dernières décennies avec l'importance de l'axe Kénitra - Casablanca, considéré comme la principale unité géographique structurante de l'espace national.

Ainsi, huit grandes villes sur quatorze recensées en 1982, se localisent sur le littoral atlantique: Casablanca, Rabat, Salé, Tanger, Safi, Kénitra, Agadir et Mohammedia. Il s'en suit qu'aujourd'hui l'Atlantique concentre 61% de la population urbaine des grandes villes, et 17% de la population totale du Maroc vit dans l'axe Kénitra-Casablanca.

Tableau 1

Evolution de la population du littoral atlantique
1982-2000 (1000 hab.)

Provinces et Préfecture	Population totale			Population urbaine			Population rurale		
	1982	1992	2000	1982	1992	2000	1982	1992	2000
Tanger	435	566	671	310	420	496	125	146	175
Larache	319	410	456	137	198	226	182	212	230
Kénitra	714	920	1080	291	441	554	423	479	526
Salé	378	656	981	305	541	798	73	115	183
Rabat	525	690	815	525	690	815	0	0	0
Mohammedia	153	219	280	104	151	195	49	68	85
Casablanca	2274	3092	3820	2153	2928	3596	121	164	224
El Jadida	761	928	1044	148	244	335	613	684	709
Safi	704	848	945	264	398	483	440	450	462
Essaouira	392	428	448	47	71	94	345	357	350
Agadir	578	807	1017	244	439	577	334	368	437
Laayoune	113	141	161	96	124	141	17	17	20
Boujdour	8	10	12	4	6	8	4	4	4
Oued Dahab	21	27	33	18	27	30	3	3	3
T. Atlantique	8840	11539	13824	5008	7247	9127	3832	4292	4693
T. National	20354	25547	29636	8671	12725	16002	11683	12822	13634
%	43,3	45,1	46,6	57,7	56,9	57,0	32,7	33,4	34,4

Tableau 2

Evolution de la population du littoral méditerranéen

Provinces	1960		1971		1982		1992		TAA 60-92	
	PC	PT	PC	PT	PC	PT	PC	PT	PC	PT
Al Hoceïma	28,8	71,2	35,5	65	38,5	61,5	45,1	54,9	3,92	2,46
Chefchaoune	16,2	83,3	16,7	83,3	16,3	83,7	17,5	82,5	2,23	2,00
Nador	58,3	41,7	57,6	42,4	56	44	55,5	44,5	2,31	2,47
Tanger	62,3	37,7	75	25	74,2	25,8	83,7	16,3	3,52	3,09
Tétouan	63,2	36,8	71	29	76,1	23,9	78,8	21,2	3,10	2,54
TOTAL	48,65	51,35	53	47	55	45	59,1	40,9	3,03	2,53

PC: Population côtière
PT: Population totale
T.A.A.: Taux d'accroissement annuel

Le taux d'accroissement de la population urbaine estimé à 2,9% entre 1936 et 1952, s'élevait à 4,9% pour la période 1982-1992, témoignant de l'importance de l'exode rural.

2.2 Littoral méditerranéen

La tendance observée relative au glissement démographique a commencé à prendre forme après les fortes mutations socio-économiques qui ont traversé la zone nord et principalement, l'émigration vers l'Europe avec ses conséquences sur la monétarisation de l'économie de la zone et sur la transformation de l'organisation de l'espace et la diffusion du phénomène urbain. Il en ressort:

- Une augmentation rapide de la part de la population de la zone côtière dans l'ensemble de la population de la zone Nord.
- Une croissance rapide de la densité des communes côtières par rapport aux communes continentales.
- Une croissance urbaine avec la multiplication de petits centres.
- Une concentration de la population urbaine accentuée dans les capitales provinciales et dans leurs périphéries immédiates.

Le rythme de croissance annuelle entre 1960 et 1992 de la population côtière s'élève à 3,03% alors que celui de la population de toute la zone n'a été que de 2,53%.

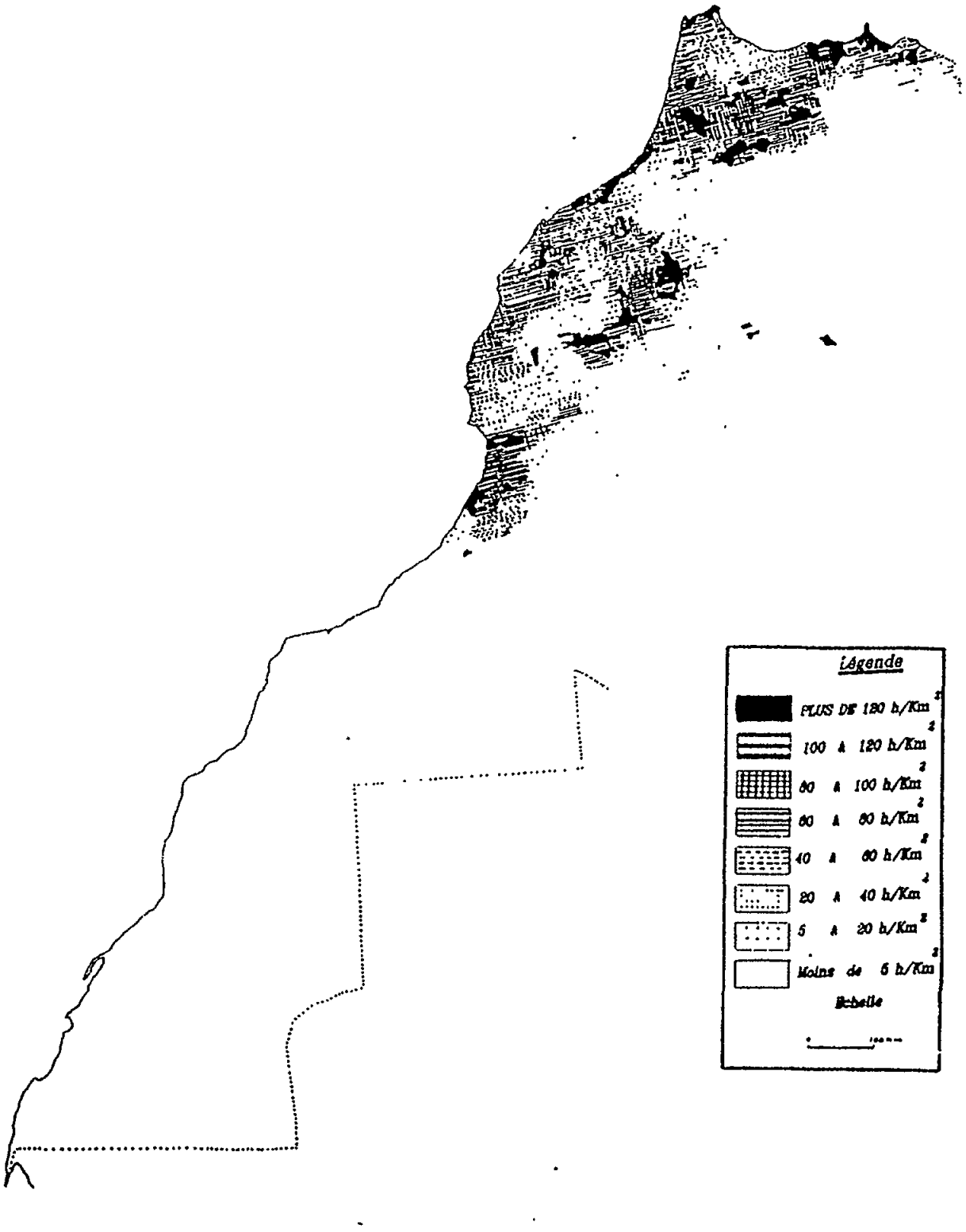

Fig. 1 Densité de population
(recensement 1982)

Concernant la répartition spatiale des densités des populations, on relève trois situations:

- *Secteur à forte densité: il s'agit des communes à la périphérie de Tanger* (64 hab/km^2 en 1960, 246 hab/km^2 en 1992).

- Secteur à densité élevée: il s'agit des bandes côtières des provinces de Tétouan et de Nador.

- Secteur à densité relativement modérée: il correspond aux deux provinces de la zone centrale: Al Hoceïma et Chefchaouen.

3. LES ACTIVITES ECONOMIQUES

3.1 Industrie

- **Littoral atlantique**

La géographie industrielle du Maroc est marquée par la forte concentration de l'activité industrielle sur le littoral atlantique et principalement dans l'axe Kénitra-Casablanca.

Cette importance est liée à la diversité des industries qui s'y localisent: l'agro-alimentaire, le textile, la chimie et la para-chimie, l'industrie mécanique et électrique.

Huit unités industrielles sur dix et plus de huit emplois sur dix sont concentrés sur le littoral atlantique et principalement dans les grandes agglomérations.

En effet, et malgré le phénomène de diffusion du tissu industriel à des centres urbains de taille moyenne, celui-ci reste fortement concentré dans certaines grandes villes: Casablanca, Tanger, Rabat-Salé, Kénitra, Mohammédia, Safi et Agadir.

- La Wilaya de Casablanca concentre la majorité des industries et domicilie l'essentiel des sièges sociaux des entreprises industrielles, des institutions financières, des sociétés de transport et transitaires, des commerces de gros et d'import-export.

- Safi: conserves de poissons et traitement des phosphates.

- Jorf Lasfar: traitement des phosphates.

- Agadir: industrie agro-alimentaire.

- Mohammédia: raffinerie de pétrole.

- **Littoral méditerranéen**

Le paysage industriel marocain, connaît aujourd'hui une relative mutation avec l'apparition de quelques centres d'intérêt régional, voire national. C'est le cas de Nador et de Tanger en Méditerranée.

En 1990, les emplois générés par l'activité industrielle sur l'ensemble de la côte, s'élevait à 32 192 contre 23 713 en 1982, soit un taux de croissance annuel de 3,90%.

Le tissu industriel reste fortement dominé par les petites et moyennes entreprises et par le secteur textile et habillement.

3.2 Pêche

Ce secteur intervient pour plus de 12% de la valeur des exploitations totales et près de 40% dans l'exportation des produits alimentaires.

La pêche côtière mobilisait en 1994 plus de 73.700 tonneaux de jauge brute et le nombre de bateaux est passé de 1360 à 2609 de 1984 à 1994. L'effort de pêche en haute mer est plus considérable, le nombre de bateaux est passé de 275 à 421. Ce chiffre concerne seulement les bateaux marocains sachant que la pêche en haute mer est essentiellement assurée par la flottille étrangère.

Malgré la multiplication des petits ports à rayon d'influence locale tout au long de la côte atlantique, la pêche reste sur le plan géographique, fortement concentrée dans cinq ports principaux: Agadir, Tan-Tan, Safi, Essaouira et Casablanca

Concernant la Méditerranée, le faible équipement de la zone n'a pas permis à cette activité de dépasser son caractère quasi-artisanal.

Par ailleurs, les différentes agressions que subit le milieu marin font que la part de la Méditerranée dans les quantités de poissons débarquées au niveau national ne cesse de décroître en raison de la nature de la pêche pratiquée et de la destruction du potentiel halieutique (emploi de la dynamite) compte tenu des modalités de pêche et le pillage systématique pratiqué par les chalutiers étrangers.

3.3 Tourisme

L'avènement du tourisme au rang du secteur économique prioritaire s'est traduite par le déferlement d'une demande nationale croissante sur le produit balnéaire. Il en résulte aujourd'hui, une urbanisation quasi-totale de la bande côtière comme c'est le cas de l'axe Rabat-El Jadida et la côte méditerranéenne occidentale choisie comme le principal lieu de prédilection de l'action de l'Etat dans ce domaine.

Cependant, la phase couvrant les deux dernières décennies a été marquée par le déclin du poids de la Méditerranée, avec l'orientation des investisseurs vers les opérations immobilières en édifiant des résidences secondaires.

Les modes d'aménagement et la recherche des localisations pieds dans l'eau se traduisent par la durcification des dunes et des plages. La conséquence la plus visible de cette forme de conquête du cordon littoral est l'amaigrissement progressif des plages et la réduction des espaces forestiers.

II. PROBLEMES ENVIRONNEMENTAUX

Contrairement aux pays développés où les problèmes environnementaux d'ordre planétaire sont très importants· effet de serre, destruction de la couche d'ozone, protection de la biodiversité, dans les pays en développement, la problématique environnementale renvoie principalement à la gestion rationnelle des ressources naturelles, à la dégradation de l'environnement urbain, au mode et au type d'emprise sur les espaces naturels.

Au Maroc, l'effort soutenu du développement économique durant les deux dernières décennies a engendré une dégradation de certains écosystèmes naturels et a accentué certains problèmes de l'environnement en général et de l'espace côtier en particulier.

En effet, le domaine littoral, compte tenu de son importance démographique et économique, connaît un processus continu de dégradation. Celui-ci est d'autant plus important que l'espace concerné connaît une mise en valeur accélérée, basée principalement sur une surexploitation des ressources.

1. PHENOMENE DE LITTORALISATION

Durant les trois dernières décennies, la pression démographique exercée sur la zone littorale, conjuguée à l'insuffisance de l'offre en logements et en terrains aménagés, a eu une incidence sur la configuration des agglomérations et la qualité du cadre bâti.

En effet, le basculement vers le littoral de l'organisation socio-spatiale, en plus des déséquilibres démographiques et économiques qu'il implique à l'échelle nationale, est à la base d'une multitude de formes de dégradation de l'environnement.

- Densification des tissus anciens et dégradation du cadre bâti (979hab/ha dans la médina de Tétouan);
- Prolifération de l'habitat non réglementaire;
- Absence de maîtrise foncière et urbanisation de terrains à fort potentiel agricole entraînant la dégradation du couvert végétal et la destruction des dunes bordières et de la ligne côtière;
- Détérioration des espaces verts;
- Pollution atmosphérique et pollution de l'eau et du milieu marin par le déversement des eaux usées et des déchets industriels et ménagers;
- Dégradation de l'environnement urbain, compte tenu du décalage entre l'importance des demandes sociales et la capacité de réponse de la puissance publique et des collectivités locales.

D'autre part, les opérations d'aménagement touristique constituent un facteur essentiel à la base de la diffusion du phénomène urbain et le glissement de ce dernier vers le littoral, formant dans certains cas un mur ininterrompu de béton, ce qui défigure le paysage, cache la mer et bloque l'accès à l'espace maritime public.

2. POLLUTION DES EAUX COTIERES

2.1 Pollution d'origine industrielle

A l'échelle du littoral atlantique, quatre zones sont particulièrement concernées:

- l'embouchure de l'oued Sebou qui draine tous les rejets des industries localisées dans les principales villes situées sur les deux rives (tanneries, huileries, sucreries, distilleries...);

- l'axe Rabat-El Jadida, compte tenu de la forte concentration urbaine et industrielle et surtout du complexe pétrochimique de Mohammédia et de celui de Jorf Lasfer (acide phosphorique);

- la ville de Safi, en relation avec le complexe phosphatier et les industries de conserves;

- la ville d'Agadir, compte tenu de l'importance de l'activité portuaire.

Concernant le littoral méditerranéen, et bien que le potentiel industriel soit encore très faible, les quelques industries, exclusivement urbaines (teintureries, tanneries, textiles) ne manquent pas de poser une diversité de problèmes. En effet, toutes les unités industrielles rejettent leurs effluents liquides soit directement dans les eaux des oueds, soit dans le réseau d'égout, lui même se déversant dans les cours des oueds et/ou en mer.

En outre, le suivi de la pollution de l'air par les métaux lourds et le gaz sulfureux dans la zone de Tanger, a montré aussi que les émissions atmosphériques peuvent engendrer, dans certaines conditions (transport éolien et pluviosité) le transfert des polluants vers le réceptacle majeur qui est, la mer. A cet effet, instaurer un réseau de surveillance de la pollution de l'air dans la région côtière marocaine nord, renforcerait le cadre de surveillance de la pollution atmosphérique causée par les pays de la rive nord du bassin méditerranéen.

Par ailleurs, les ports subissent différentes formes de pollution. Outre les rejets d'eaux usées et le déversement des polluants transportés par les rivières, on retrouve dans les bassins portuaires une pollution associée au type d'activité: déversements des produits pétroliers et chimiques, rejets dans l'atmosphère des poussières dues à la manipulation de matières solides en vrac (phosphates, soufre et minerais), rejets des raffineries et industries chimiques implantées dans les ports.

D'autre part, les eaux internationales régionales subissent une agression continue par le déversement des eaux huileuses surtout en Méditerranée qui reçoit annuellement environ 650.000 tonnes d'hydrocarbures déversés par les navires.

La pollution chimique et/ou organique affecte les sédiments et les zones conchylicoles. L'eutrophisation est apparue en deux points de la côte méditerranéenne et de façon épisodique sur la côte atlantique. Conséquence de la pollution azotée et phosphorée, l'eutrophisation porte atteinte à la vie halieutique et peut avoir des effets dangereux pour la santé des personnes consommant des mollusques pollués.

2.2 Pollution liée aux problèmes d'assainissement

L'explosion démographique des principaux centres urbains du littoral et les besoins en urbanisation qu'elle engendre expliquent la difficulté de la maîtrise de cette croissance.

Il s'en suit que les stations d'épuration des eaux usées sont souvent détériorées ou dimensionnées de façon insuffisante, ce qui contribue à une pollution des eaux côtières dont les effets se font sentir avec plus d'acuité en Méditerranée.

Concernant l'assainissement solide, le manque de moyens humains et matériels des collectivités favorise une gestion déficiente des ordures ménagères qui sont souvent déversées dans des décharges sauvages ou mal contrôlées.

En outre, les décharges municipales reçoivent souvent des déchets industriels et dangereux qui peuvent alors contaminer les nappes d'eau souterraines et mettre en danger une ressource si précieuse.

3. EROSION DES COTES

Que ce soit sur le littoral atlantique ou la côte méditerranéenne, la dune bordière est devenue le site privilégié pour l'édification de résidences secondaires en bord de mer. Il en découle que de nombreuses plages souffrent d'un appauvrissement en sable: certains tronçons de l'axe Kénitra-Casablanca, plage de la baie de Tanger et les basses vallées du détroit.

La destruction de la végétation et l'érosion éolienne favorisent la disparition des dunes et constituent une menace pour les zones de culture. Le tourisme est l'une des menaces les plus lourdes de conséquences qui pèsent sur les écosystèmes dunaires. la surfréquentation balnéaire et les opérations de promotion immobilière en bordure de mer sont de nature à rompre l'équilibre naturel entre les plages et l'arrière-pays. En effet, une enquête sur l'érosion des plages a montré qu'en 1993-1994, sur 47 plages, sept avaient disparu et 16 étaient en état d'érosion intensive.

4. INSUFFISANCE DU CADRE REGLEMENTAIRE

L'espace côtier ne fait l'objet d'aucune législation spécialement conçue pour le sauvegarder en tant qu'écosystème particulier, formant un ensemble écologique relativement homogène quoique diversifié, et nécessitant par conséquent son propre régime juridique de gestion et de conservation.

En effet, à part une circulaire du Premier Ministre du 19-6-64 créant une commission interministérielle chargée notamment de définir une politique des aménagements touristiques et balnéaires, elle ne contient aucun texte dédié spécialement au littoral.

Par ailleurs, d'autres textes, quoique anciens, comportent des mesures intéressantes. On peut citer entre autres:

- le dahir du 10.10.1917 sur la conservation et l'exploitation des forêts en ce qu'il inclut les dunes maritimes dans le domaine forestier;

- les textes régissant les aires protégées, celles-ci pouvant exister dans les zones côtières;

- le dahir du 11.9.1934 sur les parcs nationaux;

- le dahir du 21.7 1923 sur la police de chasse qui permet d'instituer des réserves naturelles côtières,

- le dahir du 23.11.1973 régissant la pêche maritime

D'autre part, le manque de moyens de contrôle de la pollution pélagique et de la surexploitation des ressources halieutiques, compte tenu de l'étendue de la zone économique exclusive du pays, rend difficilement contrôlable le respect de la réglementation internationale par les utilisateurs de cet espace.

L'état de la législation nationale et l'absence d'un droit du littoral, reflète la situation institutionnelle de la gestion de cet espace. Cette gestion est marquée par la multitude d'intervenants et l'absence d'un organisme administratif chargé spécifiquement de concevoir une politique appropriée pour la gestion du littoral.

En résumé, les zones du littoral où les problèmes environnementaux se posent avec plus d'acuité sont:

4.1 Littoral atlantique

- L'embouchure de Oued Sebou.

- Le littoral allant de l'agglomération Rabat-Salé à El Jadida.

- La ville de Safi avec le complexe phosphatier et les industries de conserves.

- La ville d'Agadir vu l'importance de l'activité portuaire.

4.2 Littoral Méditerranéen

- La baie de Tanger qui continue à recevoir les eaux usées, et les effluents de la zone industrielle de Moghogha.

- Le littoral s'étendant de Martil au Cap Mazari qui reçoit les eaux usées de la ville de Tetouan et les effluents de la zone industrielle de Martil.

- Le Centre de M'diq et son espace maritime

- La Mar Chica à Nador considérée comme la zone la plus menacée à cause des eaux stagnantes.

- Le nord et l'est de la ville d'Al Hoceïma par le déversement des eaux usées.

A ces problèmes, s'ajoutent:

- Les apports des particules et substances dissoutes générées par les pays industrialisés de la côte nord du bassin de la Méditerranée.

- Les contaminations par les hydrocarbures provoquées par le trafic maritime international qui empreinte le détroit de Gibraltar.

- L'emploi de la dynamite et d'autres procédés de pêche réduisant les possibilités de reproduction des ressources halieutiques.

III. ACTIONS POUR LA PROTECTION DU LITTORAL

Conscient de l'intérêt économique et humain des aspects environnementaux liés au développement économique et démographique du pays, le Gouvernement marocain a créé en mars 1995, un Ministère de l'Environnement qui succède au Secrétariat d'Etat auprès du Ministre d'Etat à l'Intérieur chargé de la protection de l'environnement, mis en place trois ans plus tôt.

Parmi les priorités du Ministère de l'Environnement, figure le renforcement du cadre institutionnel afin de pouvoir tracer la politique du gouvernement dans un domaine géré jusqu'à présent par plusieurs départements ministériels. Dans ce cadre, un projet de création d'un *Conservatoire National du Littoral* est en cours d'élaboration en collaboration avec la Coopération Française.

Mais d'ores et déjà, le Ministère de l'Environnement avec sa structure centrale à caractère intersectoriel, a essayé dès sa création, par le biais du Conseil National de l'Environnement (CNE)[1] placé sous sa tutelle, de promouvoir et de coordonner les actions des autres départements ministériels concernés par la gestion du littoral.

Ainsi, plusieurs actions ont été lancées pour sauvegarder l'environnement littoral du pays.

1. STRATEGIE NATIONALE POUR LA PROTECTION DE L'ENVIRONNEMENT ET LE DEVELOPPEMENT DURABLE

Bien que les objectifs de la Stratégie concernent l'environnement global du pays y compris le littoral, il n'en demeure pas moins que les actions prévues sont de nature à sauvegarder cet écosystème si fragile et ce, dans le cadre d'une politique de gestion intégrée.

Cette étude a pour principal objectif de définir les orientations et les grands axes d'une politique nationale de protection de l'environnement, basée sur une approche économique et des objectifs de qualité. Elle a permis d'établir des indicateurs de l'environnement permettant

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1) Le CNE a pour mission de veiller à la protection et à l'amélioration de l'environnement. Il est constitué par tous les départements ministériels concernés, les industriels, les représentants de la société civile (ONG,...). Le secrétariat du CNE est assuré par le Ministère de l'Environnement.

de suivre et de contrôler l'évolution de l'état de l'environnement, de définir des priorités pour l'action environnementale et d'établir des objectifs de qualité spécifique à l'eau, l'air, les déchets solides, l'environnement urbain, les sols, le milieu naturel et le littoral.

2. MONOGRAPHIES REGIONALES ET LOCALES DE L'ENVIRONNEMENT

- **Monographies régionales**

Il s'agit d'études visant à couvrir les sept régions économiques du Maroc en s'intéressant à toutes les questions se rapportant à l'environnement et notamment, à l'équilibre écologique, aux conditions de vie optimale et aux limites admissibles dans lesquelles la sauvegarde du milieu naturel serait assurée.

- **Monographies locales**

Ce sont des études qui se font au niveau des villes. Dans une première phase, 4 villes sont concernées dont 3 sont côtières, à savoir Rabat, Safi et Essaouira. Ces études permettront d'approfondir la connaissance des causes et des degrés de dégradation du littoral et de définir les actions à mener pour la préservation et la protection de cet écosystème.

3. PROJET MEDGEOBASE-MAROC

Ce projet a pour objectif principal, la réalisation d'un inventaire détaillé, à partir des images satellite, de l'occupation du sol le long du littoral marocain au moyen d'un système d'information géographique, permettant de manipuler, analyser et visualiser les données géographiques.

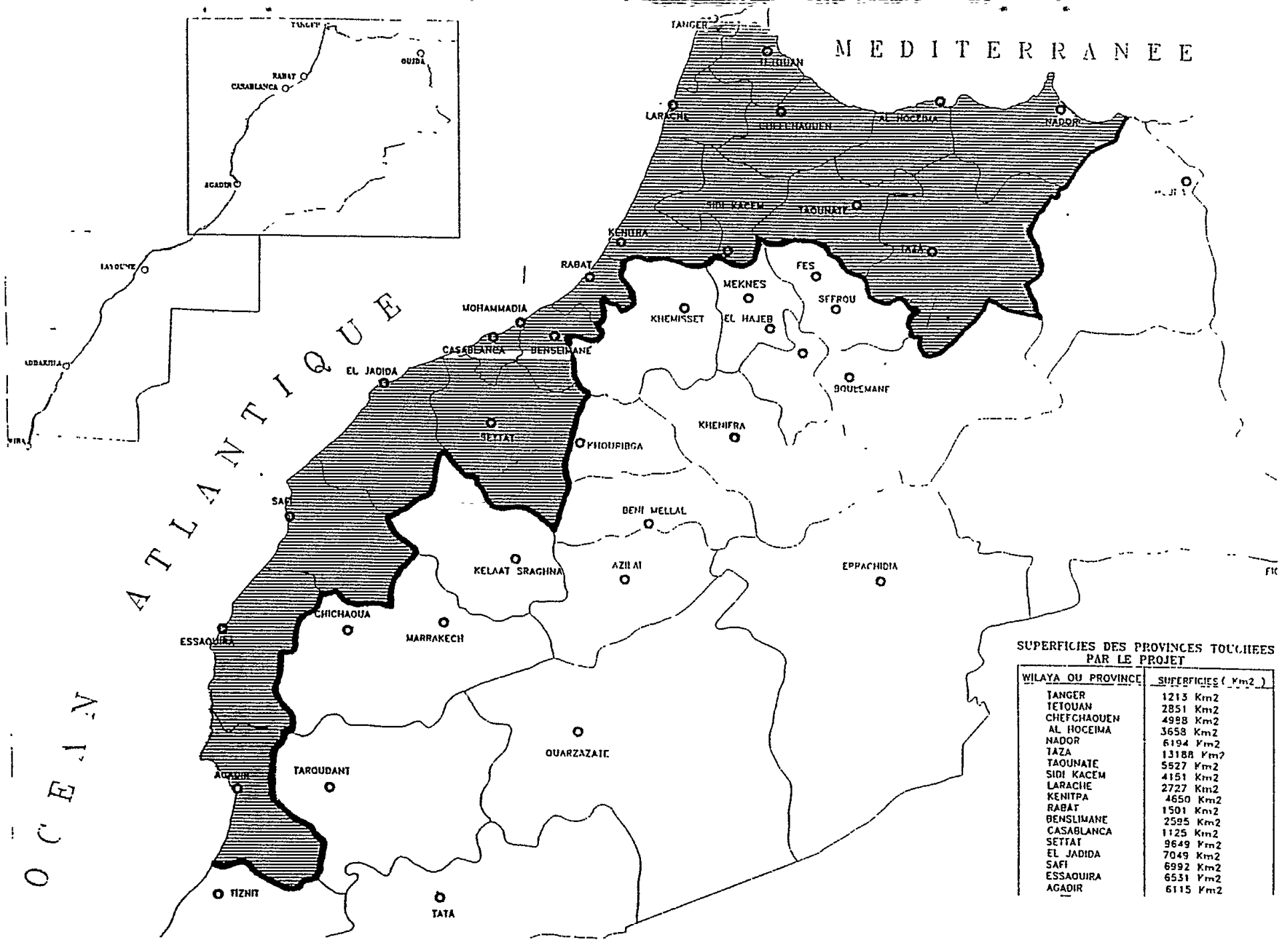
Ce projet s'étend sur une superficie de 90.000 km^2 et sur une frange littorale de 60 km de profondeur.

4. PLANS D'AMENAGEMENT COTIER

4.1 Plan d'aménagement et de gestion de l'environnement du littoral (PAGEL) méditerranéen du Maroc

Ce projet soumis au METAP phase II, vise les objectifs suivants:

- Etablir un diagnostic général de l'état de l'environnement.
- Elaborer un plan global d'aménagement et de protection de l'environnement de la région.
- Elaborer un plan d'intervention et de lutte contre la pollution accidentelle (PILP) et mise en place des instruments techniques de contrôle.
- Déterminer et initier la mise en place du cadre institutionnel pour la gestion du littoral et le suivi et l'exécution du PAGEL et du PILP.



SUPERFICIES DES PROVINCES TOUCHEES PAR LE PROJET

WILAYA OU PROVINCE	SUPERFICIES (Km2)
TANGER	1213 Km2
TETOUAN	2851 Km2
CHEFCHAOUEN	4988 Km2
AL HOCEIMA	3658 Km2
NADOR	6194 Km2
TAZA	13188 Km2
TAOUNATE	5527 Km2
SIDI KACEM	4151 Km2
LARACHE	2727 Km2
KENITRA	4650 Km2
RABAT	1501 Km2
BENSLIMANE	2595 Km2
CASABLANCA	1125 Km2
SETTAT	9649 Km2
EL JADIDA	7049 Km2
SAFI	6992 Km2
ESSAOUIRA	6531 Km2
AGADIR	6115 Km2

Fig. 2 MEDGEOBASE-MAROC
Echelle 1/2.500.000

4.2 Plan d'aménagement côtier (PAC) de la zone d'Al Hoceïma

Le projet du plan d'aménagement côtier de la zone d'Al Hoceïma est le premier d'une nouvelle génération de projets visant à formuler un programme de travail qui identifie des activités spécifiques dans le domaine de la gestion des côtes, et suggérant aux pouvoirs locaux des solutions pratiques aux problèmes réels dans un esprit de développement durable.

Dans ce cadre, un certain nombre d'actions ont été programmées:

- Etude d'impact environnementale du port d'Al Hoceïma
- Etude sur les problèmes d'érosion.
- Sensibilisation de la population aux problèmes de l'environnement.
- Protection des ressources en eau.
- Utilisation de la télédétection dans la classification et l'étude de l'évolution de la végétation du parc.
- Etude des sites historiques.
- Plan d'aménagement touristique.
- Gestion des déchets solides et liquides
- Traitement des eaux usées des centres urbains et ruraux de la région.
- Mise en place d'un plan d'urgence local.

D'autres projets sont en cours d'élaboration par les autres départements ministériels notamment le Ministère des travaux publics:

- Travaux d'aménagement de la baie de Tanger par la réalisation d'épis de protection de la plage et l'adoption d'un plan d'action à moyen terme.
- Projet d'aménagement de la côte d'Agadir sur une dizaine de kilomètres.
- Missions d'expertise sédimentologique menées sur le littoral de Rabat-Casablanca, le littoral de Tétouan et le port d'Agadir.
- Dans le cadre de la lutte contre l'ensablement, plus de 28000 ha de dunes maritimes ont été stabilisées afin de protéger les villes et les infrastructures socio-économiques le long de la côte atlantique.

5. EXPLOITATION RATIONNELLE DES CARRIERES

Le rythme accéléré de l'urbanisation de la zone côtière s'est accompagnée d'une exploitation abusive du sable des plages et des dunes littorales avec tous les problèmes environnementaux qui en découlent.

Pour faire face à cette situation, une Commission technique interministérielle, a été instituée pour évaluer l'impact de telles exploitations sur l'équilibre écologique du milieu environnant et proposer des solutions appropriées.

Par ailleurs et afin de résoudre les problèmes juridiques des carrières, une circulaire a été élaborée en 1994. Elle consiste en la création de comités régionaux de suivi chargés de rationaliser l'exploitation des carrières en prenant en considération les intérêts économiques et touristiques du pays sans omettre les enjeux écologiques s'y attachant.

6. GESTION RATIONNELLE DES RESSOURCES HALIEUTIQUES

La planification de l'effort de la pêche est devenue une nécessité du fait que certains stocks sont menacées par l'effort de pêche excessif.

C'est ainsi que les mesures suivantes ont été édictées soit pour atténuer la surexploitation de certaines ressources, soit pour interdire la pêche d'espèces menacées ou la pêche au moyen d'engins destructifs:

- Arrêté du 16 juin 1992 relatif à l'interdiction temporaire de pêche de certaines espèces.

- Arrêté du 1er octobre 1993 relatif à l'interdiction temporaire de pêche de certaines espèces.

- Arrêté du 26 octobre 1993 relatif à l'interdiction temporaire de pêche des phoques moines et autres mammifères et espèces marines.

- Arrêté du 17 juin 1994 relatif à l'interdiction temporaire de pêche de l'alose sur le littoral maritime.

- Arrêté du 1er septembre 1994 interdisant l'utilisation des filets fixes confectionnés en monofilament.

- Arrêté du 15 juin 1995 relatif à l'interdiction temporaire de pêche du mérou au large des côtes de la Méditerranée.

7. ETUDE NATIONALE SUR LA BIODIVERSITE

Pour mettre en oeuvre la Convention Internationale sur la diversité biologique et les recommandations de l'Agenda 21, il a été décidé, en coordination avec le PNUE, de réaliser une Etude nationale sur la biodiversité dont les objectifs sont:

- Disposer d'un fonds de données sur la biodiversité qui permettra d'élaborer une stratégie et un plan d'action.

- Rassembler des données sur les éléments institutifs de la diversité biologique, leur état de conservation, leurs valeurs écologiques et économiques.

- Doter les établissements nationaux de moyens de surveillance, d'évaluation, de planification et de gestion nécessaires à la détermination des priorités et la mise en oeuvre des plans d'action.

8. CREATION D'AIRES PROTEGEES

Afin de garantir l'intégrité écologique des écosystèmes côtiers, le Maroc a créé une série d'aires protégées le long de son littoral.

Une liste non exhaustive est présentée ci-après. Elle ne comporte que les sites les plus importants du pays, eu égard à leur superficie et à leur richesse biologique.

- **Merja Zerga**

Considérée comme la plus importante zone humide du pays du fait qu'elle constitue un site de reproduction de plus de 200.000 oiseaux migrateurs, cette zone couvre une superficie de 7.000 ha.

- **Merja Sidi Boughaba**

Ce site, séparé de la mer par un cordon dunaire, fait partie d'une réserve permanente de 5.000 ha. Il recèle un grand nombre d'Anatidae, d'échassiers et d'espèces rares ou en voie d'extinction comme la sarcelle marbrée, le hibou du cap ou la foulouque à crête.

- **Lagune de Khnifiss**

L'importance de cette zone se manifeste par sa position à l'entrée du grand désert et constitue pour cela une escale pour un bon nombre d'oiseaux migrateurs tels le flamant rose, la bage rousse, la spatule blanche, le goéland d'Audoin.

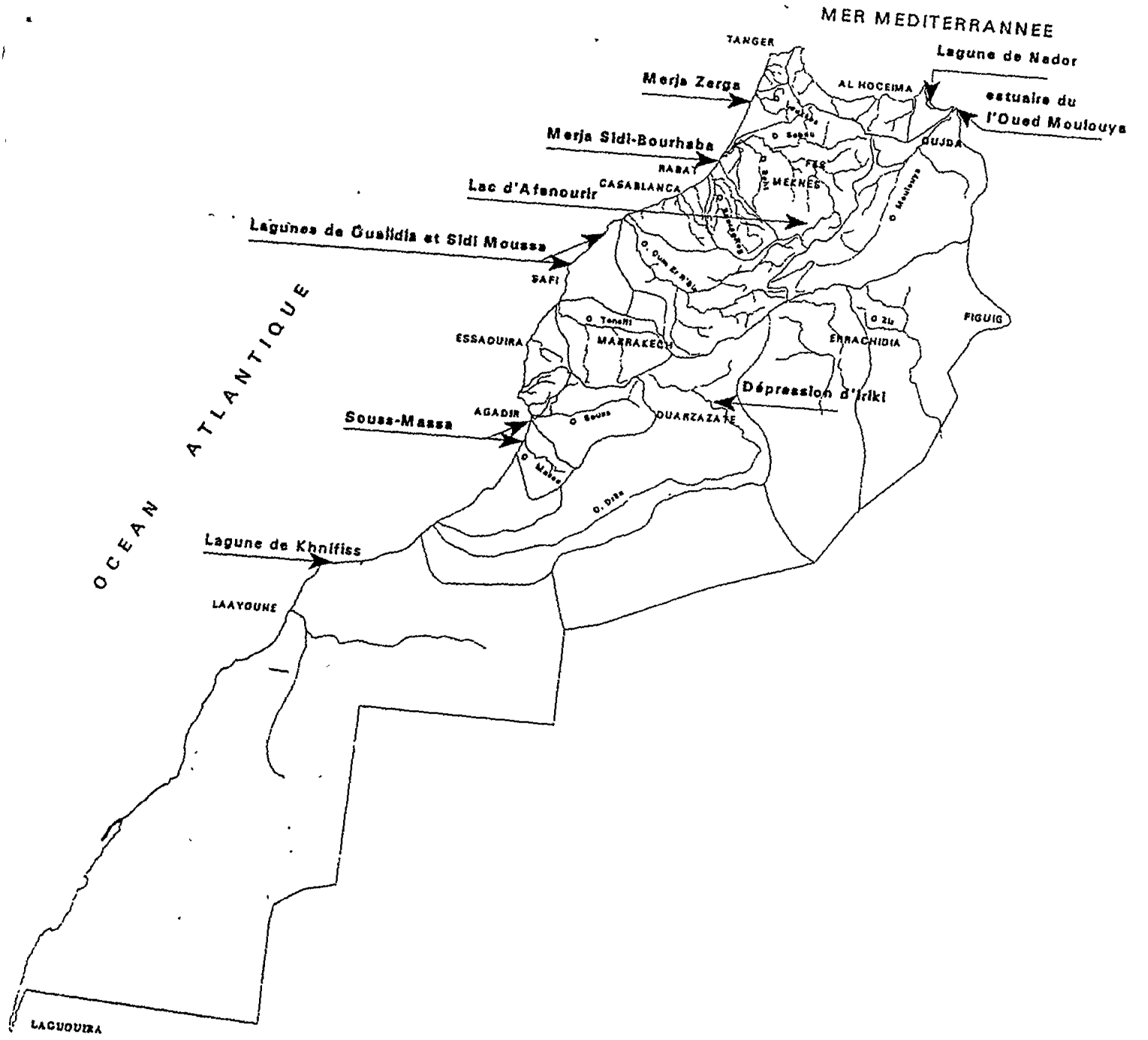


Fig. 3 Zones humides du Maroc

Il est à signaler que les trois sites cités ci-dessus, sont classés dans la liste de RAMSAR comme étant d'intérêt international.

- **Parc National du Sous-Massa**

Ce site est classé comme réserve biologique depuis 1992, il héberge une avifaune très riche d'espèces nicheuses, migratrices et hivernantes.

- **Lagune de Oualidia et Sidi Moussa**

Ces deux lagunes situées au sud d'El Jadida présente un site privilégié d'escale pour les oiseaux migrateurs tels que l'espèce rare du courlis à bec grêle

- **Estuaire de l'Oued Moulouya**

Situé sur la côte méditerranéenne, ce site d'une superficie de 3.000 ha constitue une aire d'hivernage pour plusieurs espèces dont le flamant rose, le goéland d'Audoin, la spatule blanche.

- **Lagune de Nador**

Cette lagune est située sur une superficie totale de 10.000 ha. Parmi l'avifaune de la lagune, on rencontre quelques espèces rares comme l'échasse.

- **Parc National d'Al Hoceïma**

Un parc national est projeté dans la région d'Al Hoceïma. La zone lui correspondant se situe à 150 km environ à l'est du détroit de Gibraltar. Elle intégrera des milieux d'une grande valeur biologique et une côte rocheuse sauvage avec des falaises de plus de 600 m de haut.

La faune du parc est caractérisée par la présence du phoque-moine, espèce menacée d'extinction et plusieurs espèces rares d'oiseaux notamment, le balbuzard pêcheur, le goéland d'Audoin, le faucon pèlerin, l'aigle royal, l'aigle de Bonelli et des passereaux rupestres.

9. PLAN D'INTERVENTION D'URGENCE EN CAS DE POLLUTION ACCIDENTELLE EN MER

Le projet du plan d'intervention d'urgence se propose de fournir un guide qui institue un système opérationnel de collaboration administrative, technique, scientifique et juridique entre les différentes administrations et organismes concernés par la gestion et la protection du milieu marin. Il s'agit d'un mécanisme qui établit le partage des responsabilités pour les divers intervenants à travers une coordination et une concertation efficace afin de mobiliser tous les moyens disponibles en cas de pollution accidentelle.

Ce projet est actuellement soumis au Conseil des Ministres après avoir été approuvé par un Conseil de Gouvernement. Le décret d'application y afférent est en cours d'élaboration en collaboration avec la Coopération française.

10. PROJET DE LUTTE CONTRE LA POLLUTION PAR LES HYDROCARBURES DANS LA ZONE SUD-OUEST DE LA MEDITERRANEE

Un projet de lutte contre la pollution par les hydrocarbures dans la zone sud-ouest de la Méditerranée, financé par le GEF, est en cours d'exécution en collaboration avec l'Algérie et la Tunisie.

Ce projet, basé sur une approche commune, prévoit une assistance technique, l'équipement de lutte contre les marées noires, le renforcement des capacités institutionnelles, l'adoption de plans nationaux d'urgence, etc.

11. PROJET MEDPOL

Dans le cadre du programme du MEDPOL, le Maroc (en tant que partie prenante), assure le suivi de l'état de la pollution de ses côtes méditerranéennes par le biais du Ministère de l'Environnement doté d'un Laboratoire national d'étude et de surveillance de la pollution et des nuisances, en coordination avec les différents instituts nationaux concernés.

Les sites de prélèvement ont été définis selon leur niveau de sensibilité.

12. HYGIENE DES PLAGES

Le Ministère de l'Environnement, par le biais du Laboratoire national d'études et de surveillance de la pollution et des nuisances, a lancé un vaste programme de contrôle et de suivi de la qualité des eaux de baignade en particulier, en période estivale.

13. AUDITS INDUSTRIELS

Une étude sur la pollution industrielle dans la région de Mohammédia-Casablanca est en cours d'élaboration. Elle consiste à réaliser des audits au niveau d'une dizaine d'entreprises les plus polluantes de la région qui permettront de développer en concertation avec tous les acteurs concernés, des plans d'actions spécifiques pour réduire les émissions polluantes provenant du complexe industriel Casablanca-Mohammédia.

Une étude similaire est en cours pour le complexe phosphatier du Jorf Lasfer dans la région d'El Jadida.

14. CONSOLIDATION DE L'ARSENAL JURIDIQUE ET REGLEMENTAIRE

Un projet de loi sur la protection et la mise en valeur de l'environnement a été soumis au Conseil du Gouvernement pour approbation. Ce projet de loi répond à des objectifs précis, notamment la prise en compte de l'environnement dans tout projet d'aménagement, la protection des ressources naturelles y compris les ressources halieutiques, la lutte contre la pollution des eaux marines, etc.

D'autres projets de lois sectorielles sont en cours d'approbation notamment:

- Projet de loi sur le littoral.
- Projet de code maritime.
- Projet d'amendement de la loi sur les établissements classés.
- Projet de loi sur la pollution atmosphérique.

Par ailleurs, l'Office national des ports est en train de réviser le Dahir de 1961 sur la police portuaire afin de renforcer l'efficacité du contrôle des activités à risque (transport des matières dangereuses, identification des épaves).

Parallèlement à ces projets, une loi sur l'urbanisme a été adoptée en 1992 à l'issue de laquelle tous les schémas directeurs y compris ceux concernant la zone littorale sont en train d'être révisés dans un cadre de concertation entre tous les acteurs concernés.

15. ETUDES D'IMPACT SUR L'ENVIRONNEMENT

Dans le cadre du renforcement institutionnel des structures chargées de la protection de l'environnement, le Ministère de l'Environnement a crée un service d'études d'impact en collaboration avec la Banque mondiale dans le cadre du programme METAP.

Ce service a pour tâche d'évaluer les études d'impact sur l'environnement des projets de développement, dans les différents domaines socio-économiques.

A cet effet, une procédure d'étude d'impact sur l'environnement a été élaborée et présentée au Conseil national de l'environnement pour examen et sera soumise prochainement au Conseil de Gouvernement pour approbation.

Le Ministère de l'Environnement examine actuellement les dossiers concernant les dragages au niveau d'Al Hoceïma, du port de Mohammédia et d'Oued Laou, ainsi que le plan directeur d'aménagement de la zone littorale de Tétouan.

16. MESURES INCITATIVES

- **Création d'un fonds de dépollution industrielle**

Conscient de la difficulté que peuvent rencontrer les entreprises pour se conformer aux dispositions réglementaires en cours d'élaboration, le Ministère de l'Environnement a mis au point, en collaboration avec la GTZ (Coopération Technique Allemande), un fonds de dépollution industriel (le FODEP).

Ce fonds a pour objectif d'accorder une aide financière aux entreprises pour leur permettre de développer leur procédés industriels et améliorer ainsi, leur performance en matière de dépollution et de protection de l'environnement.

- **Avantages fiscaux**

Dans son article 32, le code des investissements industriels accorde des exonérations en matière de droit d'importation ou de TVA sur le matériel et biens d'équipements spécifiques destinés à la réalisation d'économie d'eau, d'énergie ou à la préservation de l'environnement.

Ce code prévoit également la prise en charge par l'Etat d'une prime d'équipement en faveur des programmes d'investissement comportant des équipements spécifiques destinés à la protection de l'environnement qui peut varier entre 10 et 20% du taux global de l'investissement.

17. ACTIONS DE SENSIBILISATION

L'information et la sensibilisation visant la protection du littoral ont fait l'objet d'un programme d'activités assez variées du Ministère de l'Environnement.

C'est ainsi que la Journée Mondiale de l'Environnement en 1994 a été célébrée sous le thème "Propreté des plages".

A cette occasion, un programme type a été tracé pour toutes les provinces du littoral (25 préfectures et provinces).

On peut également citer les festivals et autres actions de sensibilisation qui se tiennent lors de chaque période estivale.

Par ailleurs, le Ministère de l'Environnement a élaboré une stratégie de sensibilisation et de formation qui s'attaque à certains grands thèmes environnementaux selon les spécificités du milieu marocain. Parmi ces thèmes, figure le milieu littoral avec comme objectif, la préservation et la propreté des plages, la sauvegarde des ressources halieutiques et la restauration de l'écosystème littoral.

IV CONCLUSION

Le littoral marocain se trouve aujourd'hui convoité par des activités humaines multiples généralement concurrentes les unes des autres, dont certaines ont un impact négatif sur l'équilibre écologique des écosystèmes côtiers.

En effet, l'environnement littoral subit une pression croissante suite aux développement industriel, à la croissance démographique, à l'urbanisation, aux opérations d'aménagement touristique, à l'exploitation des ressources naturelles et au transport des produits pétroliers et chimiques.

Face à cette situation, le Maroc a engagé des actions préventives et curatives visant à préserver l'environnement en général, et l'espace côtier en particulier.

Cet engagement concerne essentiellement

- le renforcement du cadre institutionnel,
- l'actualisation de l'arsenal juridique et l'élaboration de nouveaux textes réglementaires;
- l'institutionnalisation des études d'impact sur l'environnement;
- l'aménagement intégré des espaces naturels;
- la gestion efficace des ressources naturelles;
- la lutte contre toute sorte de pollution;
- la mise en place d'instruments économiques et financiers;
- la sensibilisation des décideurs et de la population, aux problèmes de l'environnement du littoral.

D'autre part, convaincu que l'impact des activités humaines sur le littoral dépasse largement l'espace géographique du pays, le Maroc a adhéré à toutes les conventions internationales visant à préserver ce patrimoine et ce, dans le cadre d'une coopération régionale et internationale.

Enfin, il est à signaler qu'en dépit des menaces qui le guette, l'espace côtier marocain reste largement sous-occupé, comparé aux rivages d'autres pays.

En effet, mis à part l'axe Kénitra-Casablanca, la baie de Tanger, la région de Safi et d'Agadir ou le littoral Tétouanais, le reste du littoral paraît encore vierge.

Néanmoins, le rythme et le processus d'occupation de ce littoral par les différentes activités ont amené les pouvoirs publics à prendre des mesures énergiques pour que l'occupation future des zones côtières encore vierges soit plus rationnelle.

JOURNEES D'ETUDE SUR LES POLITIQUES DE DEVELOPPEMENT DURABLE DES ZONES COTIERES DE LA MEDITERRANEE

26-27 avril 1996 - Ile de Santorin, Grèce

Rapport National de MONACO

(Avec la participation de S.E M. J. Pastorelli)

RAPPORT NATIONAL DE MONACO

(Avec la participation de S.E. M. J Pastorelli)

A. INFORMATIONS GENERALES

Note préliminaire:

La Principauté de Monaco est un Etat Souverain constitué par une seule et unique ville côtière: MONACO.

Il n'y a donc pas de zone côtière à proprement parler par distinction à d'autres zones mais un littoral où l'on rencontre. ports de plaisance, côte naturelle, plages artificielles et terre-pleins gagnés sur la mer.

1. Longueur du littoral: environ 4 km

   - Ressources d'importance

     - Baignade sur deux sites principaux
       . les plages du Larvotto (400 mètres de long de littoral)
       . les digues du port Hercule (300 mètres de long de littoral)
     - Thalassothérapie (1 centre)
     - Deux ports de plaisance dont un permettant les escales de paquebots jusqu'à 130 mètres de long.

   - Zones et sites présentant un intérêt particulier du point de vue environnemental.

     - Réserve sous-marine du Larvotto (réserve naturelle de posidonies et de faune sous-marine avec récifs artificiels)

     - Réserve de corail rouge (sur un tombant corraligène).

2. Pourcentage de la population résidant dans les zones côtières ?

   100% (la Principauté est dans sa totalité un pays-ville côtière)

   Quelles sont les densités dans les zones côtières du pays ?

   30.000 habitants sur 2,5 hectares

   Quelles sont les activités économiques les plus importantes (secteurs et branches) situées dans les zones côtières et quel pourcentage des activités économiques nationales représentent-elles ?

   Industrie: (3000 emplois) 15% des activités économiques nationales

   - Industries de transformation de matières plastiques par injection, thermoformage ou extrusion.
   - Industries électriques, électromécaniques et électroniques

- Laboratoires pharmaceutiques ou para-pharmaceutiques.
- Imprimeries et arts graphiques
- Industries de transformation des métaux: pièces mécaniques de précision et moules pour la transformation des matières plastiques.
- Installations de traitement et d'élimination des dechets
- Industries chimiques d'extraction et de synthèse moléculaire.
- Industries textiles et d'habillement.
- Industries alimentaires.

Tourisme et Congrès d'affaires 20% des activités économiques nationales.

Commerce 23% des activités économiques nationales.

3. Quelle proportion de la zone côtière est développée de façon intensive ?

80%

Quelle proportion n'est pas développée ?

0%

Quelle proportion demeure dans un état encore relativement naturel ?

20%

Quels sont les problèmes les plus importants des zones côtières ?

- Ressources en eau· conséquentes (actuellement 20% de l'approvisionnement et pouvant suppléer jusqu'à 50% des besoins)

- Ressources en sol: très rares. les constructions occupent quasiment la totalité de la surface disponible (2,5 ha).

- Qualité de l'environnement: satisfaisante (Pas de grosses industries).

  - qualité de l'air· bonne;
  - le réseau d'assainissement couvre la totalité du pays/ville; la station d'épuration biologique maîtrise (sauf rares exceptions) les flux de pollution urbaine et industrielle,
  - quelques nuisances de bruit;
  - les nappes phréatiques sont encore de bonne qualité (quelques cas passagers de pollution locale par hydrocarbures),
  - la qualité des eaux de baignade est bonne,
  - il n'y a pas d'atteinte de pollution notable de la faune marine (les niveaux de métaux lourds et autres polluants demeurent faibles),
  - la Principauté suit de très près l'evolution et l'impact du développement de l'algue Caulerpa taxifolia dans les eaux côtières

- Au niveau des risques naturels: Monaco est en zone sismique (golfe de Gênes) susceptible de pouvoir générer un séisme de magnitude 5,5.

- *Contradictions au niveau de l'utilisation: forte dans la mesure où la densité des* activités est concentrée sur les 2,5 ha du territoire national· tourisme, activités industrielles, commerce, habitations, réseaux de transport

- Paysage: d'importants efforts sont maintenus pour disposer de zones vertes suffisantes malgré l'étroitesse du territoire mais la densité des constructions demeure forte. Le paysage naturel (voisinage d'aspects montagneux et du littoral) demeure attractif et prisé par les touristes.

B. REPONSES POLITIQUES ET PRATIQUES

4. Quelle est la proposition de la zone côtière jouissant de protection ?

20%

Les zones côtières sont définies du point de vue juridique ou administratif ?

Pas en tant que telles. A noter que les "eaux territoriales" font, par contre, l'objet d'un accord de délimitation administrative avec le pays frontalier (la France).

Sur quelle base la protection se fonde-t-elle et quels sont les instruments, mesures, mécanismes mis en place pour imposer la protection ?

Les deux réserves marines sus-mentionnées ne sont pas définies par des textes qui les instaurent en tant que telle mais par des textes qui réglementent les activités dans leur zone de définition.

5. Existe-t-il des politiques avec un objet spécifique pour les zones côtières ?

Non (cf. note préliminaire). Mais il existe des planifications côtières dans le cadre desquelles des projets d'urbanisme sont définies (cf. avant-dernier paragraphe).

Existe-t-il des pratiques (à caractère non réglementaire) en matière de gestion des ressources côtières ?

Pas à notre connaissance Les activités ou l'exploitation des trois ressources d'importance sus-mentionnées sont soit réglementées, soit parfaitement circonscrites.

6. Applique-t-on des politiques d'aménagement considérées dans leur dimension géographique aux zones côtières ?

Non (cf. note préliminaire)

Qui est responsable de la gestion côtière ?

Le Gouvernement monégasque, c'est-à-dire l'Etat.

Vu la spécificité monégasque (cf. note liminaire) les pouvoirs nationaux et locaux sont confondus.

Quel est le rôle joué par les ONG et le secteur privé dans la gestion des côtes ?

- Il existe une ONG "l'Association Monégasque pour la Protection de la Nature" qui prend soin des deux réserves marines sus-mentionnées

- Les plages sont partiellement concédées à des activités commerciales privées qui interviennent (avis) dans la gestion mise en oeuvre par la Mairie

7. Quelles sont les mesures/instruments politiques utilisés pour la gestion côtière ?

Ces mesures et instruments ne se distinguent pas de ceux utilisés pour l'ensemble du territoire de la Principauté (cf note liminaire) à savoir

- réglementation en matière de propriété foncière = droit commun;
- zonage = plans d'urbanisme (gérés par le Service de l'Urbanisme et de la Construction);
- construction = règlement d'urbanisme et de voirie (géré par le même service);
- autres instruments d'aménagement = acquisition au titre du domaine privé de l'Etat avec ou sans expropriation pour cause d'utilité publique.

Applique-t-on des instruments économiques ? (de marché)

A priori non.

8. Les politiques de développement pour la gestion des zones côtières tiennent-elles compte des préoccupations relatives à l'environnement ?

Avec la remarque liminaire qu'en Principaute il ne s'agit pas de zones côtières à proprement parler mais de littoral urbain, les politiques de développement tiennent compte des préoccupations relatives à l'environnement dans la mesure où notre Service (Service de l'Environnement) peut-être consulté sur tel ou tel aménagement.

Existe-t-il une évaluation de l'impact des projets ou des plans de développement sur l'environnement ?

Pour l'instant il n'existe pas encore de réglementation instituant le caractère obligatoire des études d'impact

9. Jusqu'à quel point les politiques et plans sont-ils mis en oeuvre ?

Conformément à ce qui a été mentionné au point 6, il n'existe pas de politiques ou de plans concernant la zone côtière (ou plutôt le littoral urbain) à proprement parler Il s'agit plutôt d'une politique d'aménagement du territoire (et donc de la ville de Monaco) qui est mise en oeuvre projet après projet suivant les plans d'urbanisme arrêtés Ces

projets sont largement concertés à tous les stades de leur développement entre les différents acteurs concernés et d'une manière générale les projets arrêtés sont systématiquement conduits à leur terme.

Quels sont les problèmes au niveau de l'application ?

Il s'en suit que les problèmes au niveau de l'application sont les problèmes classiques relatifs à la mise en oeuvre de projets d'urbanisme.

Existe-t-il un mécanisme de surveillance en ce qui concerne les politiques relatives aux zones côtières ?

Non dans la mesure où ces politiques n'existent pas à proprement parler vu la spécificité monégasque.

10. Les programmes de sensibilisation du public à la gestion côtière ont-ils été mis en place ?

Notre Service de l'Environnement intervient pour produire des brochures pour sensibiliser le public au niveau:

- de l'entretien des bassins versants;
- de la protection des eaux littorales;
- de la propreté des plages;
- de la protection de l'environnement selon ses différentes composantes.

A noter que les actions de sensibilisation des jeunes (scolaires) sont importantes.

11. Existe-t-il des exemples réussis de mise en oeuvre de projets de gestion côtière ?

- *Protection des plages*: les vallons qui se déversent à proximité des plages sont déviés l'été dans le réseau d'assainissement aux fins d'épuration par la station d'épuration biologique.

- *Protection des habitats*: création d'une réserve de posidonies et de protection de la faune (récifs artificiels) dans le voisinage immédiat des plages du Larvotto.

- *Protection de la diversité biologique*:
  - réserve sous-marine du Larvotto;
  - réserve corraligène du Loews;
  - protection des espèces en voie de disparition (MEROU-CORB);
  - application rigoureuse de la CITES.

Gestion du bassin versant:

- Mise en oeuvre de campagnes de nettoyage des bassins versants en association avec les communes limitrophes de la Principauté inscrites en 1995, dans le cadre de l'Année Européenne pour la Conservation de la Nature.

- Instrumentation (débit) des vallons des bassins versants qui débouchent en mer sur le littoral monégasque et mesure des caractéristiques de pollution de ces vallons.

Gestion des déchets/recyclage, économie d'énergie

Mise en oeuvre depuis 1980 d'une usine moderne d'incinération des déchets ménagers et des déchets industriels banaux avec récupération d'énergie: la valeur produite par les fours chaudière sert à générer de l'électricité via un turbo alternateur (ce qui correspond sensiblement aux besoins d'éclairage de la totalité de la Principauté) ainsi que de l'eau chaude ou de l'eau glacée pour la climatisation de tout un quartier de la Principauté (Fontvieille).

En matière de recyclage, celui du verre et des papiers journaux est organisé systématiquement.

Développement touristique

La politique économique de la Principauté est largement tournée vers le développement touristique pour lequel de nombreux projets et réalisation sont mis en oeuvre: notamment:

- parkings pour autocars,
- parkings publics,
- centre d'attractions: Musée Océanographique, Jardin Exotique,
- futur centre des congrès et des expositions,
- hôtels, etc.

Planification côtière

De 1965 à 1972, la Principauté a conquis 10% de son territoire soit 2,2ha sur la mer par la création d'un nouveau quartier: le terre-plein de Fontvieille entièrement gagné sur la mer à l'abri d'une imposante digue de 1km de long construite sur des fonds de 45 mètres de profondeur.

Avez-vous des expériences à citer en ce qui concerne la restauration d'un problème relatif à l'environnement ?

La mise en oeuvre d'équipements d'épuration (station de prétraitement + station d'épuration biologique) qui épurent la totalité des effluents hydriques du bassin versant de Monaco et qui sont prolongés par des émissaires profonds (100 mètres de profondeur, a permis de constater une amélioration sensible de la qualité des eaux de baignade et des eaux côtières du littoral monégasque.

Des opérations expérimentales d'extension de l'herbier de posidonies ont été entreprises.

WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of SLOVENIA

(Contributed by Mr Slavko Mezek)

NATIONAL REPORT OF SLOVENIA

(Contributed by Mr Slavko Mezek)

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ABSTRACT

In the article the most important characteristics of the state of environment in the Slovenian coast area shall be described: presented are data on the state of the sea and fresh water, air, soil, protected and unprotected natural heritage, as well as waste, noise and accidents in the environment. From the substantial development point of view the state of the most important activities in the area, as settlement, tourism, traffic and agriculture are shown. On the basis of this information we can see to which extent human activity has been consistent with the principles of sustainable development in the past and furthermore identify the major problems and the priorities for their solution.

In the second part the sociopolitical and legislative context for the solution of environmental and development problems in Slovenia is delineated. presented are the main features of the transition period in Slovenia, constitutional basis and structural characteristics of the legislative reform which is in progress, the nature and the competencies of the public administration, forms of problem solution at the regional level, etc. Finally some successful models of problem solutions in the coastal area, which indicate the practical implementation of the principles of sustainable development, are presented

1. INTRODUCTION

About Slovenia

Slovenia is a young state that arose with the collapse of Yugoslavia in 1991. It is situated at the junction of great geographical areas namely, the Alps, the Pannonian Lowlands and the Dinarski Mountain Range. It also lies by the Adriatic Sea. Its neighbouring countries are Austria, Croatia, Italy and Hungary

Slovenia extends over 20,256 km^2 and has a population of just under 2 million people. The capital city is Ljubljana with a population of 310,000 people

In the structure of gross domestic product by activity (according to the standard classification of activities) and with respect to added value, the most important activities are, the manufacturing industry (about 30%), trade (about 10%), real estate, letting, business services (about 10%), transport, warehousing, communications (about 6 5%) and farming (about 5%).

The 1995 GDP per capita was over US$ 8000

About the coastal region - The Slovenian Istria

In Slovenia, the coastal region extends over the territory of three municipalities namely, Koper, Izola and Piran. This is an area of 344 km^2 (about 1.7% of the total national territory) with a population of just under 80,000 people (about 4% of total population), which means that the population density of the area is more than twice the national average (232 inhabitants/km^2, giving a national average of 98 inhabitants/km^2). Most of the population (more than 80%) lives within the 1.5 km wide strip along the coast, which is 46 km long.

A main characteristic of the region during the sixties and seventies was the rapid population growth as a result of immigration following rapid economic development and other favourable circumstances (the population growth index in the region in the years 1991/61 was 187.5 while the national index for the same period was 123.5%). Due to the general economic and political crisis (the collapse of Yugoslavia), immigration gradually stopped (migration figures in the area for 1992 and 1993 were negative) during the second half of the eighties, and more so at the beginning of the nineties. The number of inhabitants has recently been stagnant (the 1994/90 index is 100.2). Population projections made after 1990 or a year earlier did not forecast any migration Future population estimates are based solely on natural growth projections.

It is, nonetheless necessary to take into consideration the fact that due to more favourable development opportunities, the population of the region will grow faster than the national average.

The most important activities in the region are: transport, trade, tourism, manufacturing industry and agriculture.

2. STATE OF ENVIRONMENT BY NATURAL ELEMENTS

In the following descriptions of the state of regional environmental elements are given, on the basis of which the general state of the environment in the region and the degree of sustainable development in the past may be described. The source of information is the Report on the state of environment 1995, drawn up by the Ministry of environment and physical planning.

2.1 Water quality

2.1.1 Sea quality

The Slovenian part of the Adriatic sea is rather closed, shallow and strained with pollution influences from the coast and the hinterland. The program of monitoring the Slovenian sea at specific sampling places includes basic meteorological, physical, chemical and biological analyses.

The measurement results on hydrocarbons (crude oil), as expected, showed low contents which were higher only in the harbor Luka Koper and the Marina Portorož. At times higher contents were registered also in areas influenced by the ports Koper and Triest. The increases were higher in the summer when the sea traffic is dense. The contents did not exceed 50 mg/l which is prescribed for the 1. quality class of coastal sea water according to a regulation which is still valid although somewhat out-of-date.

General characteristics of the state of oxygen content in the Bay of Triest are as follows: There is always enough dissolved oxygen in the superficial stratums, a different situation can be found at the sea bottom where at times a more intense decrease of the quantity of dissolved oxygen is present in a wider area of the sea bottom (to about 2,0 - 2,5 ml/l) - e.g. in June 1989, September 1991, August 1993. Anoxic conditions cause the majority of the macro fauna to die. The dynamics of nutritive substances, such as nitric and phosphoric compounds, at some stations and depths show heterogeneous conditions and high oscillations among the single sampling places. In the years 1991 - 1993 the main events had taken place in superficial layers, while the dynamics in deeper layers had been less intense.

The framework of the permanent changes of biological conditions in the eastern part of the Bay of Triest comprises the distribution of phyto- and zooplankton organisms in time and space, the occurrence of dominant species and the dynamics of phytoplankton biomass expressed in chlorophyll.

The contents of chlorophyll as an indicator of the phytoplankton biomass had been measured at stations in different depths and had shown great oscillations. Yearly in the period 1991 - 1993 three chlorophyll maxima had been registered, usually in April, June and in the late autumn. The highest values had been generally measured in the autumn (October - November) and amounted up to 10 mg chl a/m^3, the lowest in the winter (January - February). The chlorophyll-values at single depths showed that in the late spring and in the summer most of the phytoplankton lingered next to the bottom of the sea. The rest of the year the phytoplankton biomass had been distributed evenly along the water column.

Let us mention slimy aggregations in form of small flakes, only a few centimetres long, which appeared in the summer 1989, 1990 and 1991. The flakes contained many creamy

algae, dinoflagelts and other algae in a jelly-like substance in which also many other living and inanimate floating parts were trapped. The slime was present at the surface as well as deeper and rose or fall along the water column according to the movement of the water mass dependent on the weather conditions (wind, tide) and, in September, usually sank to the bottom.

Most of the year 1993 (from July to October) inshore of the Slovenian sea phytoplanktons from the family of Dinophysis which are potentially toxic were also present.

The analyses of structural characteristics of phytoplankton and of the qualitative and quantitative structure of the microzooplankton show typical dynamic characteristics for shallow sea basins into which rivers flow as well. The total input of nutrients from the shore into the coastal waters of the Bays of Koper and Piran quantitatively does not reach some of the main polluters of the Northern Adriatic, but the discharge of non-purified waste water, which has been going on for decades, does have an effect on the ecological processes in this sea environment. The Slovenian inshore sea is burdened by urban and economic activities in the coastal area and its hinterland, and especially by sewage discharged directly into the sea.

The presence of heavy metals was measured in waste water and in rivers in the winter and in the summer period. The samples for the identification of heavy metals in sewage and subsidiary streams had been analysed twice or four times a year in the period 1991 - 1993. The content of heavy metals in the most of the samples was higher in the summer than in the winter. The results of the analysis of most of the measured metals in the outlets of wastewater treatment plants in the period 1991 - 1993 showed increased values. The lowest values had been mostly identified at the outlet of the wastewater treatment plant in Koper. All coastal rivers were burdened with nutrients, polluted with detergents and faecal sewage, the most polluted rivers in the period 1991 - 1993 being Rižana and Badaševica.

The sanitary quality of the inshore sea of Slovenia includes the determination of faecal coliform bacteria at bathing stations from Debeli rtič to Portorož, in the area of breeding mussels in the Bays of Strunjan and Piran, in the mouth of the river Rižana and in the Bay of Koper. Occasionally in the year 1991 high concentrations of faecal coliforms had occurred at watering places in Debeli rtič, Valdoltra and Ankaran, especially out of the bathing season. Inappropriate discharge of municipal sewage in the area of Izola had first of all affected the sanitary quality of the municipal bath in Izola. The mouth of the river Rižana where also the outlet of the municipal sewage of the city of Koper is located deviated from the other stations. The water in bathing stations from Belvedere to Fiesa inside of the Bay of Piran was irreproachable and suitable for recreational purposes. Concentrations of faecal coliforms could be found in the period 1991 - 1993 in the most of the samples taken near the baths.

The analyses of river and waste water with which higher or lower quantities of urban, rural and industrial sewage are discharged into the inshore water, were carried out in the winter and in the summer period. The wastewater treatment plants in Koper and Piran have a primary and mechanical treatment. The sampling of the rivers was carried out at the mouths of the rivers Rižana, Badaševica, Drnica and Dragonja. Rižana is polluted mainly with industrial sewage, Badaševica and Drnica with sewage from agricultural areas and the river Dragonja is an example of an unpolluted river.

2.1.2 Quality of fresh water

Presented data are based on the water quality monitoring which was done in 1992 due to the reorganization of the public administration taken over by the Hydrometeorological Institute of RS.

The quality of the bigger wells is to a large extent dependent on the protection of water-accumulating karstic areas which are due to the specific geological and pedological conditions as well as the weak cover protection very sensitive to pollution, whether concentrated (with sewage, wild landfills), dispersed (agriculture) pollution and especially unexpected outflows of dangerous and harmful substances. Poor knowledge about the underground karstic streams hinders the locating of pollution sources and effective action in case of outflows. Along with data on quantities and quality it is therefore necessary to locate the underground water connections by means of tracking tests.

The main water source of the Slovenian coastal area, the source of Rižana, is especially endangered by road and the railway traffic and partly by the use of means for the protection of sleepers and means for the prevention of weed growth along the track. In the source heavy metals and organic compounds are present: copper, zinc, lead, polycyclic aromatic hydrocarbons. None of the mentioned compounds in the water ever exceeded the limits for drinking water, but already smaller contents should be taken as a serious warning because of the major importance of these wells.

A systematic monitoring in the Slovenian coastal area is carried out for the rivers Rižana and Dragonja. The analyses show a slight improvement of the quality of the rivers after 1989. Rižana has been classified into the quality class 2 - (3) at the source and at the mouth the water quality has improved from the quality class 3 - 4 to the quality class 2 - 3. The river Dragonja in the same period kept the quality class 2 and 1991 reached even class 1 - 2 (the samples were taken approximately 2 km before the discharge into the sea)

2.2 Air

The Hydrometeorological Institute of the Republic of Slovenia has been monitoring the air pollution since 1968. At the beginning 24-hour concentrations of SO_2 and smoke were measured. Today the best results are achieved from the system of automatic ecological-meteorological stations.

For the period 1989 - 1994 in comparison with the year 1988 much more information on air quality in Slovenia is available. After the year 1989 a system of permanent supervision - ANAS (analytical supervision alarm system for the automatic measurement of air pollution) was established. The cooperation with the international program EMEP (European cooperation program on measurement and evaluation of long-distance transport of polluted air) was intensified - On this basis also an evaluation of the environmental strain of our region induced by the pollution coming from other places can be achieved.

The air pollution with sulfur dioxide and smoke in cities has decreased since 1977. The decrease of concentrations has been more distinctive since 1989 whereby in 1993, for the first time from the beginning of the measurements the yearly limit was not exceeded at any location of the network of 24-hour concentration measurements (valid for the total area of Slovenia).

For cities on the Slovenian coast air pollution does not present a problem, because the values are the lowest in Slovenia and under the limits (the average concentration of SO_2 in Koper has decreased in the period 1988 - 1994 from 17 mg/m^3 to 11 mg/m^3 and the average smoke concentration from 19 mg/m^3 to 9 mg/m^3).

No_x emissions. The major part of total NO_x emission in the period 1986 - 1994 stems from mobile sources (68% in the year 1994 motor vehicle traffic). In 1991 the emission due to traffic decreased (discontinuated traffic streams to Croatia and further to the southeast). In the year 1992 the NO_x emission increased slightly (in all branches, except in industry), while in the years 1993 and 1994 it increased strongly due to intensified traffic

2.3 Soil

In the area around Koper the analyses showed increased contents of nickel, chrome and copper in the soil. The concentration of nickel in the upper layer of the soil exceeds the maximum limit at ten locations, and also increased in deeper layers of the soil. The increased content of nickel and chrome is probably the consequence of the base rock, for it is well known that flysch is enriched with some metals, especially nickel. The copper content in the soil is increased in orchards and vineyards, and can be ascribed to intense agricultural production. The concentrations of particular metals in the plantain are in the range of literature limits.

Organic compounds in the soil: in the soil samples taken from fields, insecticides based on chlorinated hydrocarbons and herbicides, polychlorinated biphenyls, paraffin hydrocarbons, aromatic hydrocarbons and volatile phenol compounds could be analysed. The concentrations of the measured organic compounds are under the detection limit of analysis methods. Only in one single location very low concentrations of DDT and its metabolite DDE were detected.

The analyses were carried out by the Biotechnical Faculty, Centre for pedology and environmental protection.

2.4 Natural heritage

2.4.1 Protected natural heritage

According to the current legislation there are 5 different categories of protected areas in use in Slovenia: natural park, regional park, protected landscape, nature conservation reserve and natural monument - which are comparable with the IUCN categories.

The status of a protected landscape has been given to Strunjan cliff and the saltpan Sečovlje. As already mentioned, a law on the protection of the Škocjanski zatok as a nature conservation reserve is also in preparation.

The protected landscape **Saltpan Sečovlje** extends over 835 ha. It is an exceptional ornithological location (more than 200 species, nesting place, winter place, nesting station) and an important location of some species of halophyte and their societies, the habitat of the Etruscan shrewmouse, the sharp-eared bat (the first reliable find in Slovenia), Ramsar location since 1993, most important areas "Ob rudniku", "Stojbe", "Curto-Pichetto" and "Stare soline".

The protected landscape **Strunjan** extends over 192 ha and is unique in view of its dimensions and geomorphologic forms and phenomena, the longest segment of natural shore in the Bay of Triest, mostly original ecological processes on both sides of the shore line, preserved submediterranean vegetation in erosion gorges, a manifold underwater plant and animal life, extremely well developed basic underwater vegetation formations, the so called phytal (before the Cape Ronek) and a meadow (Moon bay).

Škocjanski zatok should be declared a nature conservation reserve this year. It is a brackish lagoon, an exceptional ornithological location (nesting place, winter place, nesting station and the only habitat of the Triglochin maritimum L. in Slovenia).

2.4.2 Unprotected natural heritage

This complex includes registered unprotected objects and areas of natural heritage and nature outside the protected areas. Under valid legislation there are only a few instruments for the intervention of protection services in preserving the nature outside the protected areas. The most important is the protection on the basis of determinations in the physical plans.

Forms of direct endangerment of nature. Prevailing forms of direct risk are inappropriate construction interventions; destruction of wetlands (filling up, draining, built-up); fragmentation of closed protected areas (road construction); cutting down of solitary trees and bushes in the course of agromelioration operations and commassacions; increased and unregulated visits of natural sights - daily tourism and recreation, Slovenian coast, etc.).

The most important examples of unprotected heritage in the discussed area are:

- Debeli rtič - geomorphology, relatively extensive shoal, diverse plant and animal life under the sea surface;
- Sv. Nikolaj - the only example of a silty, wet and shallow sea-shore, habitat of the littoral flax, spiked centaury;
- habitat of the Posidonia - the only habitat of Posidonia in the entire Bay of Triest;
- Rtič Korbat - specific limestone base rock;
- Stjuža lagoon - the only sea lagoon in Slovenia, habitat of juvenile stages of many sea organisms;
- lakes in Fiesa - freshwater and brackish biotope, important habitat of many species of dragonfly;
- Rt Madona - unique shaped sea bottom, great diversity of plant and animal life, an important site of rock coral;
- channel Sv. Jernej - the only site of the species Spartina stricta in Slovenia.

2.5 Specific environmental problems

2.5.1 Urban waste

In 1994 regular urban waste disposal on the Slovenian coast covered 83% of the population. With the gradual increase of this share the quantity of collected urban waste is growing.

In the Slovenian coastal area there are 3 landfill disposal sites where mainly municipal waste is disposed. They are usually managed by local public services.

The municipal landfill site Koper (Dvori - Sv Anton) extends over 4 ha and covers the hinterland with 45.000 inhabitants and has 33.750 inhabitants directly connected to it. Yearly on this tip 30.000 m^3 are disposed of. The landfill shall be filled-up in 1997 with no expansion possibilities.

The refuse tip Izola extends over 4,5 ha It covers 13 800 (100%) inhabitants. Yearly 30.000 m^3 of urban waste are disposed of. The landfill should be sufficient until 2015 without an expansion to new locations.

The municipal landfill site Piran comprises 1,86 ha and covers 16 600 inhabitants (about 95%) of the municipality Piran. Yearly 60 000 m^3 of waste are disposed of. The landfill should be filled-up in 1996, with the expansion to surrounding areas in 2005

2.5.2 Noise

Environmental noise pollution in Slovenia is not monitored systematically, therefore the state and the changes can be only assumed on the basis of expert evaluations.

Due to the use of modern road vehicles a reduction of noise emissions can be assumed in the road traffic, but this is not a reason to assume the overall reduction of noise pollution, because at the same time traffic volume has increased. Another specialty of Slovenia is the lack of discipline in traffic and consequently an increase of the noise pollution due to exceeding the speed limit.

The city environment is now, as before, additionally burdened with the noise of heavy vehicles of public transport , which exceed the emission of normal motor cars by up to 10 dBA.

Noise protection is a compulsory part of all interventions into the environment. This comprises e.g. the consideration of noise protection in the planning and the supervision of measures on all planned and built highway sections. Noise protection is a component of the compulsory consent for urban regulation of production or residential areas and a compulsory element of significant investments or building of new or changes to existing production activities, e.g. companies, works etc.

On the basis of the Environmental Protection Act two regulations have already been adopted. Other regulations which shall correspond to the requirements of the EU on noise protection are in preparation. In this context, along with existing requirements some additions are to be made, e.g. on emissions of machines. Within the Office for standardization and

metrics a technical committee for civil engineering was formed within which a special subcommittee for construction acoustics operates. This subcommittee is engaged in preparations for the adoption of more important standards.

2.5.3 Accidents

Specific problems of the environment also include accidents, natural disasters as well as other accidents. In the Slovenian coastal area recently the following major accidents were recorded:

1988 - bloom of agae in the Adriatic sea
1989 - Koper - outflow of potassium bromide
1990 - Koper - outflow of waste oil
1994 - Obrov - outflow of light diesel oil in karstic underground causing pollution of the principal drinking water source in Rižana.
1993 - strong tides - Izola, Piran
1987 - fire in the outskirts of Koper - 200 ha of forests
1993 - fire in the outskirts of Koper - 450 ha of forests

3. CHARACTERISTICS OF THE REGIONAL ACTIVITIES IN VIEW OF SUSTAINABLE DEVELOPMENT

3.1 Human settlement

Present situation: the principal problem of coastal cities and settlements lies in their extensive and dispersive expansion in the last decades. The trend of settlement encroachment into the surrounding space and the extensive growth of some cities, especially Koper, is continuing. The consequence of such an urbanization is a hypertrophic construction of the traffic network which at the same time contributes to such development, destruction of the natural heritage, degradation of the traditional image of the landscape, of towns and the hinterland, of precious recreation areas, especially the coast, of agricultural areas, etc.

Another problem is existing land use in towns (especially in Izola) where large and exceptionally precious city areas of national importance, next to the historical centre and next to the sea, are occupied by enterprises which could be transferred to other, less attractive locations of minor market interest. In the present situation they hinder an appropriate development of the city.

Urban plans: the plans which were drafted in the mid eighties and still in use represent the legal basis for the continuation of these trends. The problem is, above all, the extensive land use (areas meant for the expansion of the city of Koper), too large areas designated for individual construction in the hinterland of cities, problematic development of new areas for the construction of tourist facilities at the seaside, extension of settlement to areas of great natural conservation importance, imprudent urban architectonic design etc.

From the coastal preservation point of view, those interventions which envisage the following are especially questionable:

- the construction of new tourist settlements at the shore;
- the extension of the city into the lagoon near Koper;
- the preservation and expansion of - in relation to the preservation of the settlement heritage - inappropriate use of suburban areas,
- the construction of an efficient four-lane coastal highway;
- the expansion of the airport next to protected landscape

3.2 Tourism

Present situation: The area is visited by tourists primarily because of its natural beauties (coast, sea, bathing sites, characteristic landscape, the rich natural and cultural heritage) and naturally because of its attractive location relatively near bigger cities of Northern Italy, Austria and Hungary, from where most visitors come (beside domestic visitors).

The Slovenian coast has a well developed tourist infrastructure. The area has 21000 tourist beds (27% of all tourist capacity in the country), in marinas there are about 2000 moorings for pleasure boats, etc.

The principal problems with regard to adopting the principles of substantial development are as follows:

- excessive growth of tourist capacities at particular locations already induces environmental problems (congestion) which have a negative impact on tourism itself;
- traffic, as a consequence of tourism, represents major pressure on the environment;
- the location of tourist facilities at attractive landscape spots, often outside the cities, contributes to the general un-articulated dispersion of settlement;
- insufficient use of possibilities of abandoned old city centres and villages in the hinterland for tourist purposes;
- summer season orientation of tourism causes traffic problems, drinking water supply problems, oversized municipal infrastructure which is most of the time only partly used;
- congestion of the area in the summer months jeopardizes the natural heritage, especially the coast and the sea

3.3 Traffic

3.3.1 Port Koper

Present situation: characteristic of the port of Koper is a fast and dynamic development made possible by specialization in particular freight and groups of goods, and the provision of high quality services at the same time. The gravitation area of the Koper port comprises in the first place Austria, Hungary, the Czech Republic, the Slovak Republic, Bayern, Switzerland and part of Italy. Compared with competitor ports of the Northern Adriatic (Reka, Triest, Venice) the port of Koper has good development chances, first of all because of its spatial capacity, modern equipment as well as reliable and qualified working force.

The physical traffic in the port is increasing as shown by the figures on traffic movement (without crude oil) by years: 1990 4,9 million tons, 1991 3,9 million tons (the reduction is a result of the disintegration of Yugoslavia), 1992 4,0 mill tons, 1995 over 7,0 million tons.

The port is connected to the hinterland by a single-track railway (which covers 80% of the freight transport) and by road. The construction of an additional track, and by 1999, a connection to the Slovenian and European highway system are planned.

Urban planning problems: the port occupies large areas next to the historical centre of Koper which induces a degradation of the characteristic landscape image; it occupies the northern shores of the city and in this way obstructs the use of the shore for municipal purposes; it also expands towards the tourist and recreational area of Ankaran.

Environmental problems: the goods traffic through the port includes substances which cause environmental strain: coal, phosphates, (dust from open landfills pollutes the air, the water), livestock (water pollution), other freights. Another problem is the washing of ships and port surfaces, because the crude oil and other hydrocarbons washed off the surfaces eventually end up in the sea, where they accumulate in maritime organisms and in the sediment.

Environmental hazard: the dense traffic with big ships in a closed and shallow sea in the Bay of Triest represents a permanent hazard in case of a major sea accident. Another additional accident risk is trans-shipments and storage of hazardous chemical substances, crude oil, liquid oil gas etc. The freight transport on land is potentially hazardous, because it runs over the permeable water accumulating areas of the principal water source of the Slovenian coastal area, and also over the water accumulating area of the water supply system of Triest.

3.3.2 Road traffic

Present situation: The number of registered motor vehicles per 1000 inhabitants in the Slovenian coastal region is higher than the national average and comparable to developed countries. In 1995 there were 419 passenger cars registered per 1000 inhabitants, that is 1 automobile per 2,38 inhabitants. The consequence of such a high degree of motorisation is high traffic density and pressure on road infrastructure. The busiest road sections according to data from 1994 were: the four-lane highway before Koper (the yearly average of daily traffic 35.000 vehicles), the two-lane road between Koper and Izola (23.000 vehicles) and the two-

lane road to Ljubljana (16.000 vehicles). Other roads were less busy. between Piran and the border to the Republic of Croatia 8.300 vehicles, and in the hinterland between Koper and the Croatian border, the yearly average daily traffic was between 5580 and 6000 vehicles.

Problems:

- traffic jams, especially in the summer, when the area is visited by many tourists;
- parking along the historical city centres Because of the concept of extensive expansion of residential areas to the outskirts of the cities and the concentration of road services and working places the wide parking areas at the city confines are full;
- hypertrophy of the road network occupying a lot of space and painful degradation of high quality urban and ambient landscape,
- pollution (exhaust gases, noise),
- endangerment of land potentials (especially recreational, tourist and agricultural areas and national heritage);

In 1995 the modified state physical plan was adopted. The document also includes the decision about the future development of motorways and highways in the coastal area of Slovenia. According to the operational National Program on the construction of highways based on the mentioned document, the Slovenian east-west highway should be constructed by the year 2000. In this way the coastal area shall get an efficient four-lane motorway from Koper to Ljubljana and a little later a four-lane motorway to Triest, a two-lane highway to the Croatian Istria and a four-lane highway between Koper, Izola and Lucija.

Gradually it is being realized that in such a sensitive area as the Slovenian coast measures for reducing the individual automotive traffic have to be taken. For this purpose the Ministry of environment and physical planning commissioned a study on the development of the traffic system in the coastal area. In this study the possibility of implementing environmental friendly and less prodigious forms of traffic, especially public transport - railway, buses, adapted to the local conditions and sea traffic should be examined.

3.3.3 Railway traffic

To satisfy the needs of the growing traffic in the port, in 1967 a railway line was constructed from Koper to Divača or to the Slovenian railway network. Today most of the goods from the port are transported by rail (about 80%), that is about 5,6 million tons. The single-track railway from Divača became a bottle-neck, therefore the National program on the development of the Slovenian railway infrastructure provides for the construction of a 45 km long second track between Koper and Divača.

Problems:

- the principal source of drinking water for the Slovenian coast is jeopardized by the risk of a railway accident in the water accumulating area Especially since pollution with crude oil and its derivatives or hazardous chemicals would be fatal;

- by the transport across the Karst, for the same reasons, the water sources of Triest are jeopardized too;

- the water sources are also at risk because of products used for the protection of sleepers and the prevention of weed growth along the track.

3.4 Agriculture

The main agricultural characteristics of the coastal area are as follows: small and fragmented estates (prevailing size is up to 0,5 ha! Only 10% of the farms are bigger than 5,0 ha), a small share of rural and active farming population (about 3%). The consequence is extensive production, but also lower environmental pollution, due to agriculture than in areas with intensive agricultural production. The major agricultural activities are wine and fruit growing and gardening.

Problems:

- melioration of valleys, construction of water accumulations, reduction of ecological variety.

3.4.1 Mariculture

Situation: The mariculture is concentrated on white fish farming and breeding of edible thorny oyster. The current breeding quantities amount to 100 tons of fish and the same quantity of oysters per year. According to the information of the Ministry of Agriculture, Forestry and Nutrition, an increase of white-fish breeding to 450 tons and oysters to 1000 tons per year is planned.

Problems:

- feeding and treatment (antibiotics) of young fish in the already overloaded maritime environment;

- construction of the infrastructure for the farms on the shore.

3.4.2 Fishing

Situation: With the independence of Slovenia the catch of fish and other sea organisms has radically decreased. Some data on the sea catch (of fish, cephalopod, crayfish, shellfish): 1980 - 4102 t, 1985 - 6468 t, 1990 - 6024 t, 1991 - 5012 t, 1992 - 3768 t, 1993 - 2052 t, 1994 - 2110 t show, that the catch was reduced to about one third in the second half of the eighties.

Problems: due to the reduced chances of fishing today in Croatian territorial waters, the pressure on maritime organisms has increased over the population reproduction limits; an additional problem is private fisherman who preferably catch white fish sometimes with prohibited fishing devices.

4. LEGISLATIVE FRAMEWORK FOR SUSTAINABLE DEVELOPMENT

4.1 The nineties - period of transition

In the period 1990-1994 Slovenia underwent radical changes of which the most important are: attainment of independence, radical change of the legal and social environment, privatization, changed role and competence of the government etc.

The changes have also affected the area of environmental policy, for example:

- promulgation of the Environmental Protection Act (EPA) determining the new legislative and institutional framework of environmental protection in the country in accordance with changed social and political circumstances;
- *reorganization of the government in the light of the requirements of the* EPA;
- enter into new international obligations which result from the growing internationalization of environmental policies;
- participation in European integration processes and modification of the environmental laws and regulations according to EU standards.

The processes of reorganization - economic (determination of proprietors, denationalization, restructuring), political and administrative reorganization - as well as the process of reorganization of local autonomy have not been concluded yet. All those processes will affect the adopting of the existing environmental legislation. In addition, the mechanism of environmental policy making shall undergo many changes. The emphasis shall be gradually shifted from predominantly normative mechanisms to economic mechanisms of environmental protection.

4.2 Constitutional basis

The constitutional basis of the normative regulation in the area of environmental protection in the Republic of Slovenia, which by content also encompasses the problem of the transition towards sustainable development, is contained already in the general provisions of chapter 1 of the Constitution of the Republic of Slovenia, and in chapter 3 which refers to the economic and social relations in the country.

According to article 5 of the general provisions the government provides for the preservation of natural resources and for a harmonized civilization and cultural development of Slovenia.

In the chapter on economic and social relations, the provisions concerning the protection of the environment are related to the obligation of ensuring the ecological function by appropriate acquiring and use of property, including expropriation, the prohibition of economic activities contrary to the public interest, healthy living environment, public welfare and natural resources, land preservation and conservation of the natural heritage.

4.3 The structure of legislation reform

Apart from the Constitution of the Republic of Slovenia, the legal order of the European Union and that of comparable countries of the continental part of Europe, a series of documents is required in order to ensure a contextual approach to legislative reform. These documents are based on the recognition that environmental protection is related primarily to the securing of sustainable development, determined by the protection and proper exploitation of natural resources and the minimisation of quantitative and qualitative intervention in the environment. Among these documents, we point out the Declaration on the Environment and Development adopted at the United Nations Conference on the Environment and Development held in Rio de Janeiro in 1992, which was adopted also by the Republic of Slovenia.

Because of such a concept, classical environmental protection against pollution became too narrow a framework. It needed expanding to include the protection of natural resources, the reservation of the most important parts of the environment and the preservation of the landscape. This recognition is followed also by structural changes in the field covered by the Ministry of the Environment and Physical Planning to include jurisdiction over certain natural goods (water, flora, fauna) and for the protection of particular parts of nature. The concept of sustainable development is, and will of course be, applied also during the process of legislative regulation of the protection and exploitation of other natural goods.

The structure and formal approach to legislative reform stem from the fact that it is necessary, through legal norms, to regulate all those relationships in society that directly or indirectly influence the environment or its parts, in order to ensure comprehensive and effective environmental protection. For this reason, this reform includes:

- the adoption of environmental protection regulations that directly regulate the relationship to the environment;
- the adoption of regulations in the field of natural goods which will regulate the protection and appropriate exploitation of these goods as ecosystems;
- the introduction of an environmental protection approach into regulations in the field of physical and urban planning, construction and into regulations in those economic and non-economic activity fields which directly or indirectly affect the environment;
- the institution of instruments and mechanisms for environmental protection into other legal fields, be it the field of public law (public finances, state administration, local administration, standardisation, etc.) or in the field of civil law (the act on obligatory relationships, the act on material rights, the act on insurance, etc.), or in the field of criminal law (penal law, the act on offences, etc.).

Within the framework of legislative reform constant harmonisation of the legal order, in the field of environmental protection, is taking place, with the legal order of the European Union, one of the essential conditions for full membership of the Republic of Slovenia in the Union.

4.4 Public administration organization

4.4.1 National level

In Slovenia, the duties of national administration are performed by ministries. Administrative units, with individual ministerial departments operate at the local level. The ministries, important for the management of coastal resources are.

The Ministry of the Environment and Physical Planning, within which the Nature Protection Authority and Office for Physical Planning operate. The Nature Protection Authority performs duties concerning comprehensive environmental protection, natural heritage, water protection (including the sea), comprehensive environmental impact assessment, allocation of concessions for use of water, and the like. The Office for Physical Planning performs duties concerning physical planning (state physical plan together with the regional components) and the supervision of the preparation of physical plans at the local level.

Other ministries are also important for the management of coastal resources, primarily because of their influence on the development of individual sectors (mainly, the economy, agriculture and transport) which directly or indirectly affect the coastal area and its resources.

4.4.2 Local Administration

The municipalities (there are three in the coastal area) have important responsibilities in the field of environmental protection and physical planning. They prepare and adopt physical plans and detailed urban plans. As soon as the law determining the distinction between national and local public good will be adopted, there will be possible to declare natural public good status to natural goods and, on the basis of this status, allocate concessions on these goods. Local communities are also responsible for local public services.

4.3 Non-governmental organizations

Non-governmental organizations in Slovenia are, in terms of number of members, relatively small (up to 50 members). Among the larger ones are: the Union of Environmental Protection Associations in Slovenia (uniting 22 associations), the Natural Sciences Association of Slovenia, the Slovene Ecological Movement and the Association for Bird Watching and Investigation. Slovene NGOs operate at the regional, national and inter-municipal level. They are involved primarily in raising awareness, training and education the public, alerting government institutions about environmental problems and suggesting solutions, offering legislative initiatives, promoting sustained development , and so on

The history of NGOs of the coastal area dates back to the mid-eighties when a well organised group of citizens was founded with the aim of exerting influence on the former power structure in Yugoslavia and in Italy to prevent construction of a big thermoelectric plant on the Italian side, just by the border, which would have considerably worsened the environmental situation in the area. In cooperation with NGOs from the Italian side the action succeeded and the project was not realised. The most publicised action in the recent period was the action taken by the Association for Bird Watching and Investigation which succeeded in its initiative to protect an extensive lagoon close by the town and port of Koper which would otherwise have been drained and built-up.

5. SECTOR PLANNING, PHYSICAL PLANNING

Up to 1989 Slovenia practised integral planning which included economic, social and physical aspects. The system was radically changed during the transition period. Planning was reduced to sector planning, carried out by individual ministries (national sector development programmes) and to physical planning on state and local level.

Presently, longer-term sector planning is being implemented in Slovenia through national programmes of individual sector development which must be approved by parliament. By last year, inclusive, national programmes had been adopted in the following fields: general economic development, energy, agriculture and forestry, scientific research and technological policy, health, tourism, motorways and railway infrastructure, which are particularly important for the coastal area. National programmes normally also include environmental issues. They take into consideration all the requirements for the protection of coastal resources (especially in the national programme concerning tourism). It is, however, not possible to state that all national programmes explicitly strive to harmonise the development of the sector with the principles of sustainable development.

The long-term plans of individual municipalities specify, above all, the following:

- settlement networks, transport network, drinking-water supply network and network for waste-water drainage;
- the concept for planned land use (settlement areas, agriculture, forests, open-air recreation, water sources protection areas, natural and cultural heritage, renewal areas;
- the protection and improvement of the human environment.

The long-term plan is presented in detail in the mid-term plan. On the basis of the mid-term plan detailed urban plans are prepared which provide the basis for permission to use space.

6. ASSESSMENT OF ENVIRONMENTAL IMPACT

The Environmental Protection Act implements the instrument of consent of the Ministry of environment and physical planning which has to be granted before any national or local physical planning laws or sector plans for economizing natural resources can be adopted. The Ministry grants its consent on the basis of a study on integral impact assessment. In contrast to the assessment of environmental impact this study implies the assessment of the environmental impact of the total planned activities in a particular area. This provision is not in use yet due to the absence of an implementation rule

The assessment of environmental impact is also prescribed by the law for those interventions which are subject to a licence (exploitation and use of land, water, forests, mineral resources and other natural resources), construction, technical changes and implementation of new technologies, issuing of new products. The basis for the assessment is the report on environmental impact which represents an integral part of acquiring a licence for an intervention into environment. The assessment procedure corresponds to the Council

directive on the assessment of the effects of certain public and private projects on the environment, 85/337/EEC).

Until the coming into force of the Environmental Protection Act, environmental impact has always been assessed to a certain degree in the procedures of granting licences only for interventions into space. The obligation of such an assessment is provided by the law on settlement regulation and other interventions into space, and by the law on construction.

7. FORMS OF COOPERATION AT REGIONAL LEVEL

As already stated, the main area of the immediate coastal region extends over the territory of three municipalities. There is no organised local administration at the regional level as there is no national administration in Slovenia, a problem exemplified particularly in areas with such specific problems like the coastal area.

However, municipalities, when solving issues of inter-municipal interest, join into districts. In the coastal area, these are issues concerning, primarily the protection of the environment, the sea and coast, water supply, organization of transport and physical planning. The coastal municipalities are among the first municipalities in Slovenia preparing for the introduction of a district.

On the other hand, the Ministry of the Environment and Physical Planning is encouraging the preparation of regional development plans, for specific (economically functional regions) areas in Slovenia, where particular emphasis is being placed on environmental protection and physical planning. Various ministries (responsible for regional development, the economy, energy, transport, agriculture, environment and space), local communities, as well as non-governmental organizations, are taking part in the project. The objective of such projects is the identification of development goals and guidelines for the development of individual sectors at regional level. The results represent the premise for the preparation of harmonised inter-municipal policy on the environment, physical planning and for the coordinated planning of settlements. This policy is being implemented, primarily, through physical planning at the municipal level. Another important result of such projects is better co-ordination of activities between sectors, and between national and local administration.

In 1993, even before the introduction of the approach described here which, in content, is similar to the recommendations for integrated management of coastal areas and their resources, the Office for Physical Planning organised a planning workshop for the coastal area entitled *Physical Planning of the Coastal Area*. Thirteen groups of experts in physical planning participated in the planning workshop. The purpose of the planning workshop was to offer both local communities and the wider public, proposals for more appropriate use of space in the immediate coastal zone, which are the most scarce and most precious goods in the region. The results of the planning workshop were the recommendations made for various levels of physical planning and for the development of major services that strongly influence the environmental characteristics of the region. These recommendations are meant both for ministries as well as local authorities. Many of the recommendations are already being implemented.

In Slovenia, integrated coastal area management (ICAM) is not being practised yet through the coastal area management programme (CAMP), in accordance with the principles of sustainable development. Activities, somewhat similar in content and approach are, however, being carried out under the direction of the Ministry of the Environment and Physical Planning in collaboration with local communities during the preparation of regional development plans. In order to improve this approach for the coastal area, in particular, Slovenia is competing for funds from the PHARE programme which would enable the introduction of ICAM - CAMP for the coastal area.

8. SUCCESSFUL SOLUTIONS

As successful solutions of particular problems in the spirit of sustainable development, the following could be mentioned:

- protection of the Škocjanski zatok - brackish lagoon by the city of Koper which shall force the local authorities into more rational use of land, meant for building. The city shall become more dense and it will be easier to cross it on foot or by bike. The possibilities for establishing an effective public transport system shall also grow;

- national road network in the coastal region is designed to lead the transit traffic between Italy and Croatia as far away from the coast as possible and the traffic between towns through a tunnel parallel to the coast in order to totally relieve the coast. The cities Koper and Izola in this way shall get precious recreation areas next to the sea, in a length of 4 km, which should reduce the need to get to more distant recreation grounds;

- regulation of the city traffic in the Piran - Portorož area is based on destimulation of personal motor vehicle traffic (high parking fees) and stimulation of public transport (cheap transport with smaller vehicles - buses and taxis). It has to be admitted, however, that the traffic conditions in this area culminated in the summer months to such an extend that the implementation of an attractive collective transport system became inevitable;

- declaration of the city council of the municipality Piran as a "green community" which, among other things, does not support further expansions of tourist capacities, but strives for higher quality of the environment and tourist services.

WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of SPAIN

(Contributed by Mr Fransisco Montoya)

NATIONAL REPORT OF SPAIN

(Contributed by Mr Fransisco Montoya)

Spain has approximately 7,880 kilometres of coast line. Beaches account for 24% of the total coast.

A 5 km wide strip along the whole coast holds 35% of the 40 million Spanish population, while representing only about 12% of Spanish territory.

The importance of this coastal zone has been taken into account in the last few years. A shore Act passed in 1966 was a former attempt to regulate the use of the coastal zone, imposing some restrictions as to nearby constructions.

This law and its implementation turned out not to be suitable tools to prevent invasion by construction of part of the coastal zone, negatively affecting the coastal dynamics and the public use and access to the beaches

A law passed in July 1988, has improved the situation and we may now begin to ascertain its results.

To understand how the coastal zone is managed in Spain, it is necessary to start by stating that there is neither a rule nor an authority with a whole scope on the multiple issues related to the coast.

If we assume a generic concept of the coast as that strip wide enough to embrace both sides of sea and land where some kind of interaction takes place, a series of laws and agencies are entitled to manage sectoral aspects of the coast

The seaside of the coastal zone may coincide with the public domain as defined in the 1988 Shore Act:

- Territorial and inland waters, their beds and subsoil as defined and regulated by their specific legislation, and

- Natural resources of the economic zone and the continental shelf as defined and regulated by their specific legislation.

Uses and activities on the side of the coastal zone, as set forth in the Shore Act, are regulated by sectoral laws, and no kind of coordination among them is specifically implemented. The real coordination when necessary (hazards, special use of the sea bottom, etc.) is carried out by authorities or commissions that have powers of a general character to coordinate action of diverse agencies or by commissions with a specific purpose when the event they are created to tackle happens.

The land side of the coast is not defined in any Spanish law The most comprehensive regulations on this strip of the coast are contained in the land use rules and plans. Nevertheless, the regulations of the aforementioned 1988 Law set forth minimum requirements for any construction or activity in the land side of the coastal zone that is defined as public property by the law or charged with any of the easements established thereby.

So, the definition of public property in the coastal zone and the easements on the adjacent lands are the only general rules to be complied with because of the character of coastal land. The limitations imposed for particular land use plans on the coastal zone depend on the will of planning authorities, but not are compulsorily established because of their coastal zone character.

The definition of coastal public property as set forth in the 1988 Spanish Shore Act is as follows:

The seashore and coastal water inlets which include:

- The foreshore, i.e., the zone between lowest water mark of high spring tides and the highest limit reached by the waves in the greatest known storms, or, the highest water mark of spring tides, whichever is higher. This zone also includes the shores of the rivers up to the point affected by the ebb tides. This zone includes marshes, estuaries, swamps and, generally, all lowlands which are periodically inundated by the rise and fall of the tides, the waves or seawater filtration.

- The beaches, i.e., zones of deposit of unconsolidated material such as sand, gravel, stones and cobblestones, including escarpments, berms and dunes, whether covered with vegetation or not and formed by the action of the sea, sea winds or other natural or artificial causes.

Likewise, the limitations in the adjacent properties because of the protection of the public domain are the right of passage easement and the protection easement, which are defined as follows:

Right of passage:

Is imposed over a strip of 6 metres lying landward from the landward limit of the seashore. This area shall be permanently left clear to allow the passing of pedestrians and surveillance or rescue vehicles, except in specially protected areas.

The width of said strip can be enlarged in areas of difficult of dangerous passage, as it is necessary, up to a maximum of 20 metres.

This zone may be exceptionally occupied by works to be carried out in the coastal public property. In such an event the easement zone shall be replaced by another new one in similar conditions, as directed by the Central Government. It can also be occupied for the construction of seafront promenades.

Protection easement:

Is imposed over a zone of 100 metres landward from the landward limit of the seashore. Whenever necessary to secure the effectiveness of the easement and based on the particularities of a particular stretch of the coast, the length of this zone can be enlarged by the Central Government upon prior agreement with the corresponding Regional Government and Town Council, up to a maximum of another 100 metres.

In the protection easement zone the following shall be forbidden:

a) Buildings for residential purposes.
b) The construction or alteration of intercity motorways or roads with traffic levels higher than those stipulated in the implementing Regulations as well as their service areas.
c) Activities involving the destruction of deposits of sand, stones and gravel.
d) The aerial laying of high-tension electrical cables.
e) The disposal of solid waste, rubble and unprocessed sewage.
f) Advertising by means of posters bills or boards or by acoustic or audiovisual means.

Generally, only works, installations and activities which by their very nature may not be located elsewhere or which provide services necessary or convenient for the use of the coastal public property, as well as outdoor sports installations, will be permitted in this area. In any event, the carrying out of embankments, levelling and felling of trees shall comply with the conditions set forth in the implementing Regulations to safeguard the protection of public property.

Permitted uses in the protection easement zone shall be subject to prior authorization of the Central Government, which shall be granted pursuant to the provisions of this Act and the implementing Regulations issued pursuant to Section 22 hereof, which may contain the conditions deemed necessary for the protection of the public property.

The public access easement ensures that in developed areas, one pedestrian access every 200 metres and one access for vehicles every 500 metres are available. These accesses should be guaranteed through land use plans, but in case this tool turns out to be inefficient, Central government is allowed to create such accesses wherever it's not possible to do so through urban planning.

Pictures in Annex I show a few examples of both, definition of coastal public property and allowed activities or constructions in neighbouring private-owned lands on which the mentioned easements are imposed.

The compliance of all these requirements is compulsory for everybody and the Central Government has authority to ensure the fulfilment of such policy. The 1988 Shore Act has a Title devoted to infractions, and their punishment. Procedures and penalties are both minutely described in this title that allows penalties up to 200.000 000 pesetas. Likewise, the resolution of the procedure must establish the obligation to topple illegal constructions, and withdrawal of the rubble from the public domain and affected easements zones.

Administrative resolutions may be appealed to the justice Court, that has final jurisdiction on the issue.

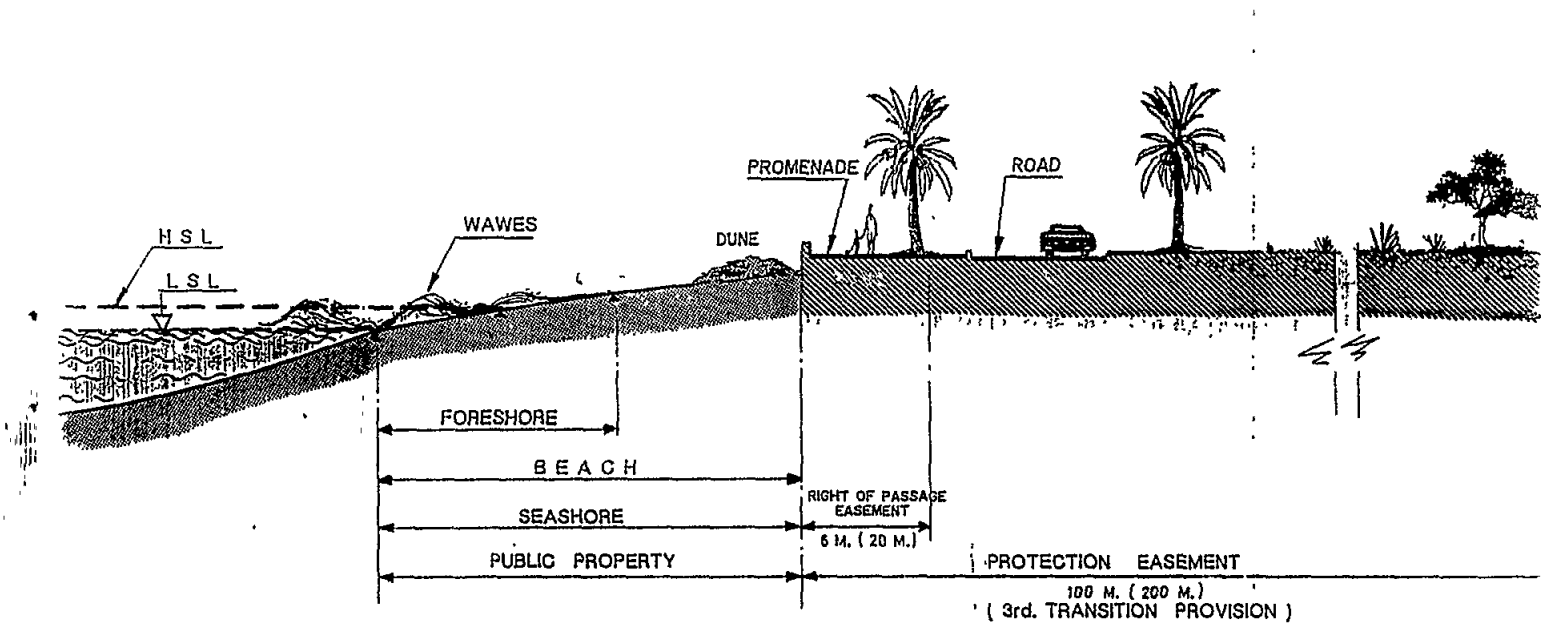
A particular issue the Law deals with is the establishment of criteria with technical consequences for creation and reclamation of beaches. This priority, regulated in Section 44.4 of the Law, is shown in Annex II

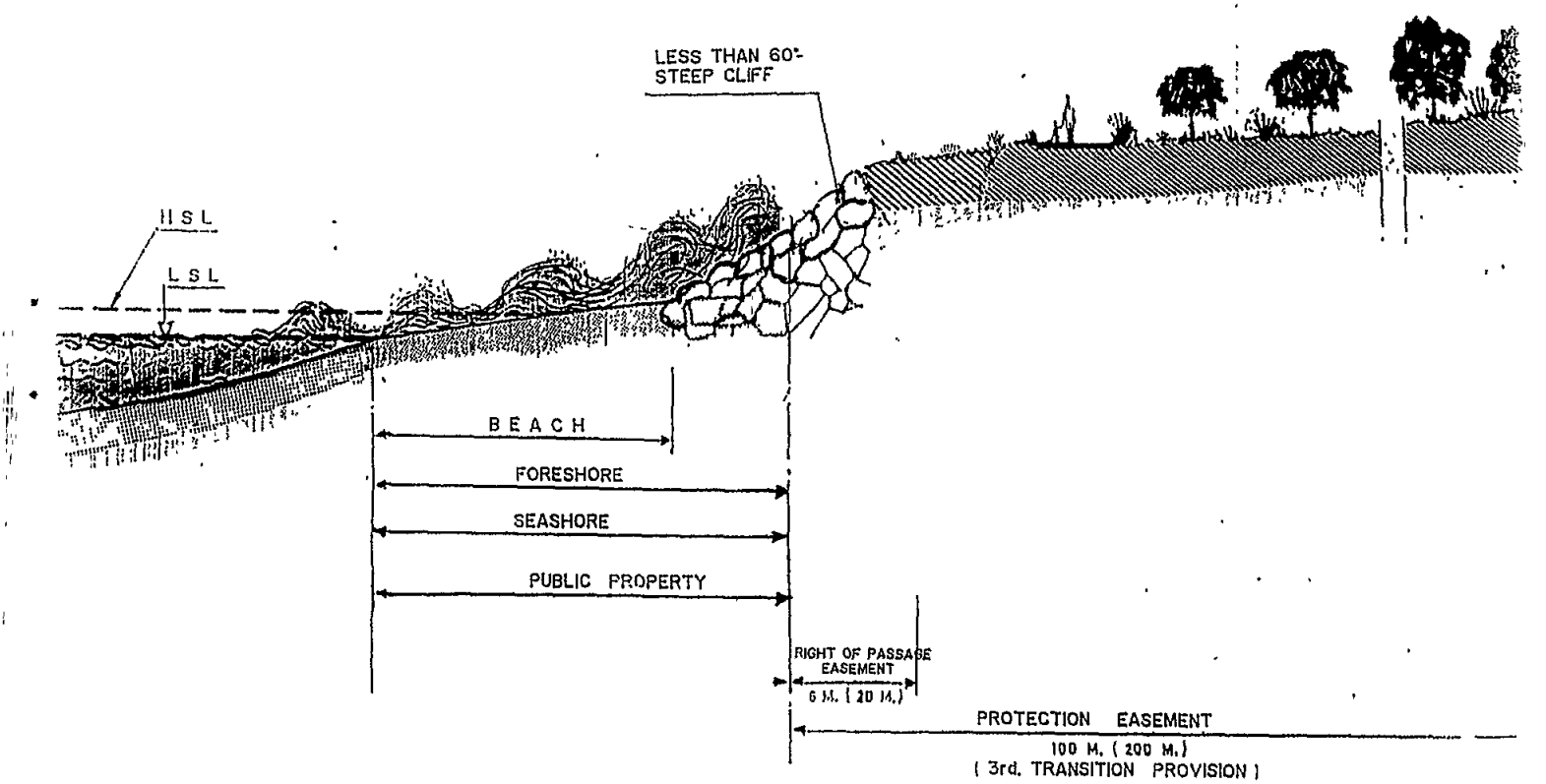
A coordination mechanism, to ensure that shore Act requirements are met in the land use plans, is set forth in the law. It entails a report from the Central government agency in charge of the public domain and must pinpoint the meeting of the land use plans stipulations with those minimum requirements established in the Sore Act.

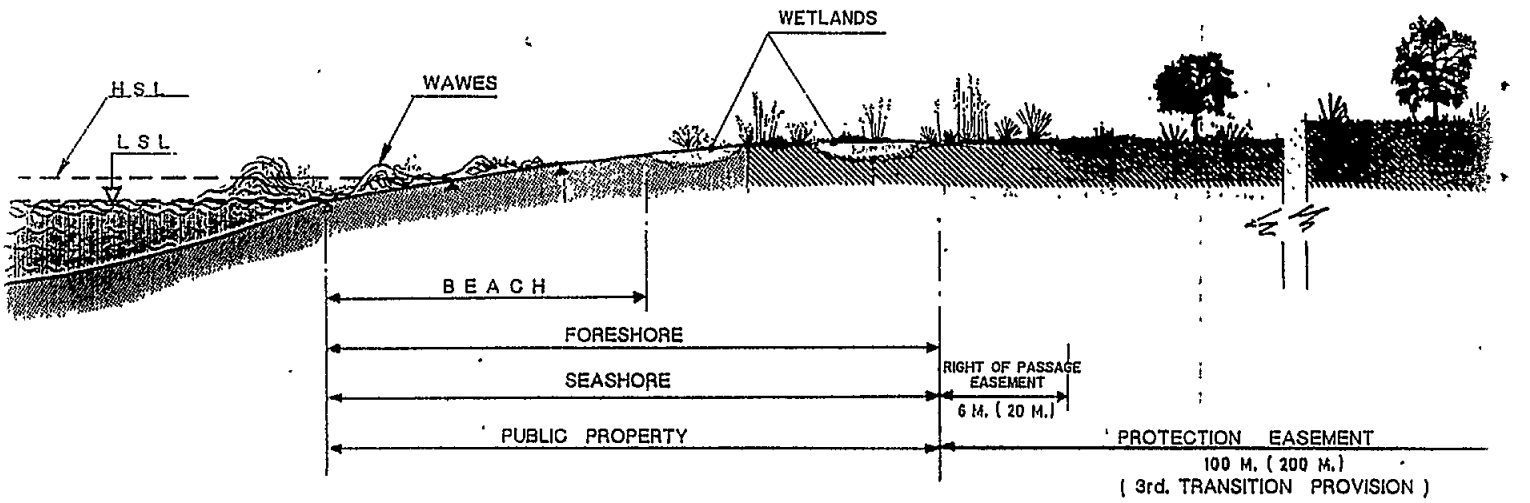
An increasing feeling of the lack of an integration system for coastal management is currently felt in Spain, with so many agencies and levels of government competencies on the coastal zone, and not having an overall view of the whole coastal strip (either because no consideration in the sea side is taken into account in the near the sea land use plans, or even when only land use is planned, considerations about the character of coast are not assured, on the other hand, as has already been said no coordination is either ensured in the activities in the sea side).

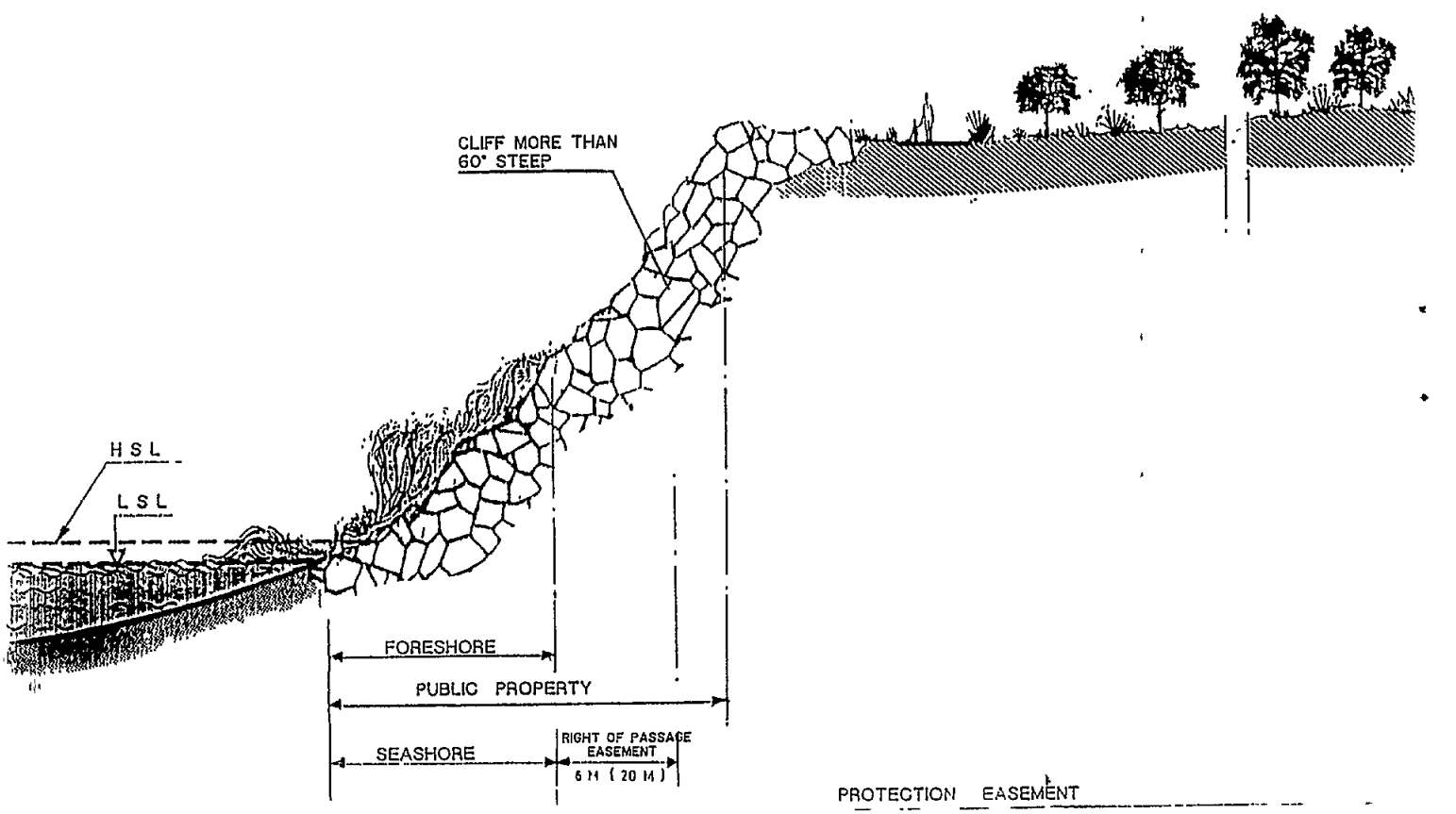
The distribution of power that the Spanish Constitution set up between Central, Regional and Local Governments and the diverse agencies of each of them involved in coastal issues makes coordination difficult, but the above-mentioned feeling, the world wide awareness of this necessity, and the Summit of Earth Declaration of Rio 92 in its Chapter 17, agreed by all the participant countries, offers reasonable hope, that in the coming years, some kind of joint action between agencies dealing with coastal issues will be developed.

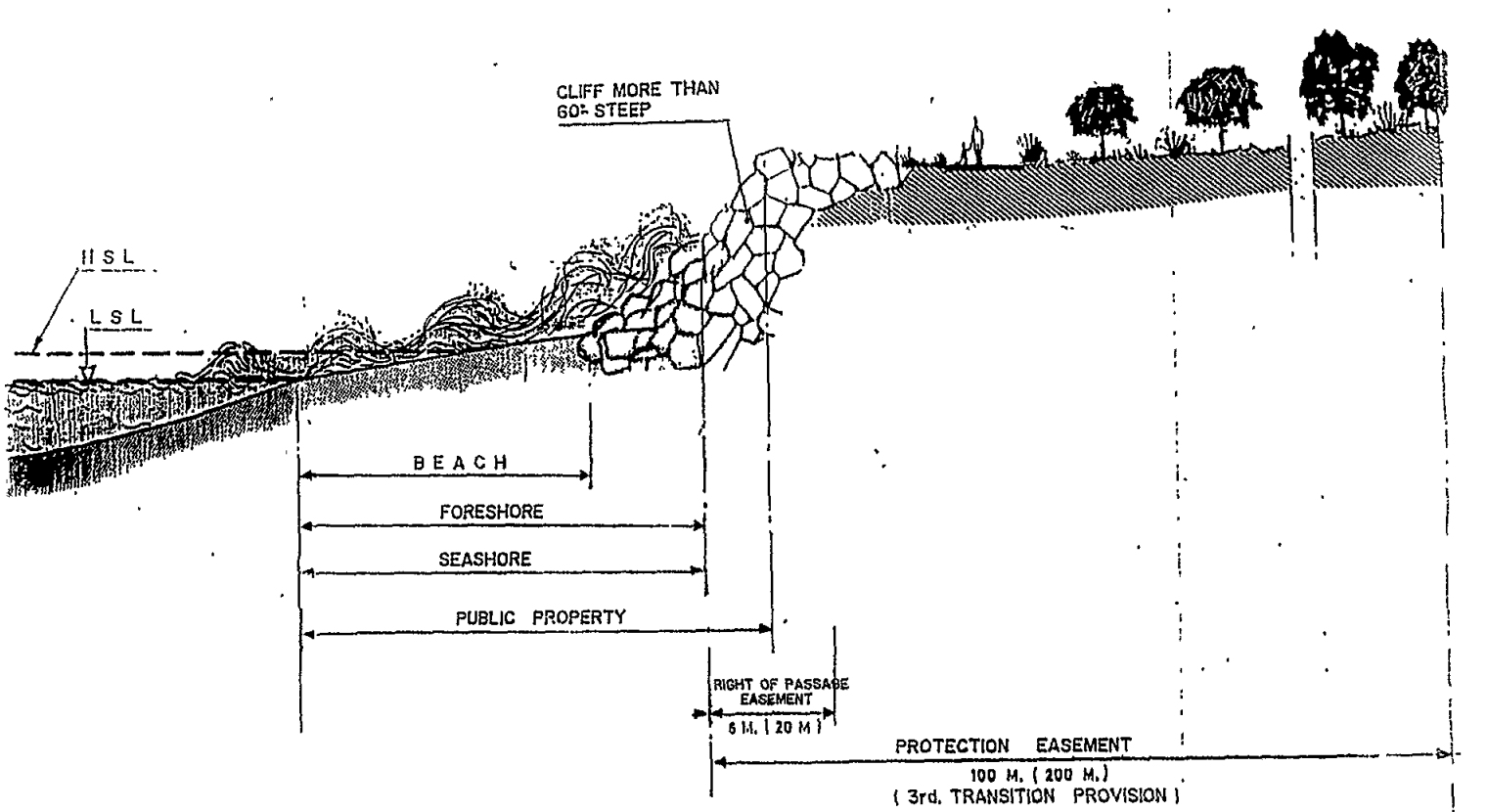
ANNEX I

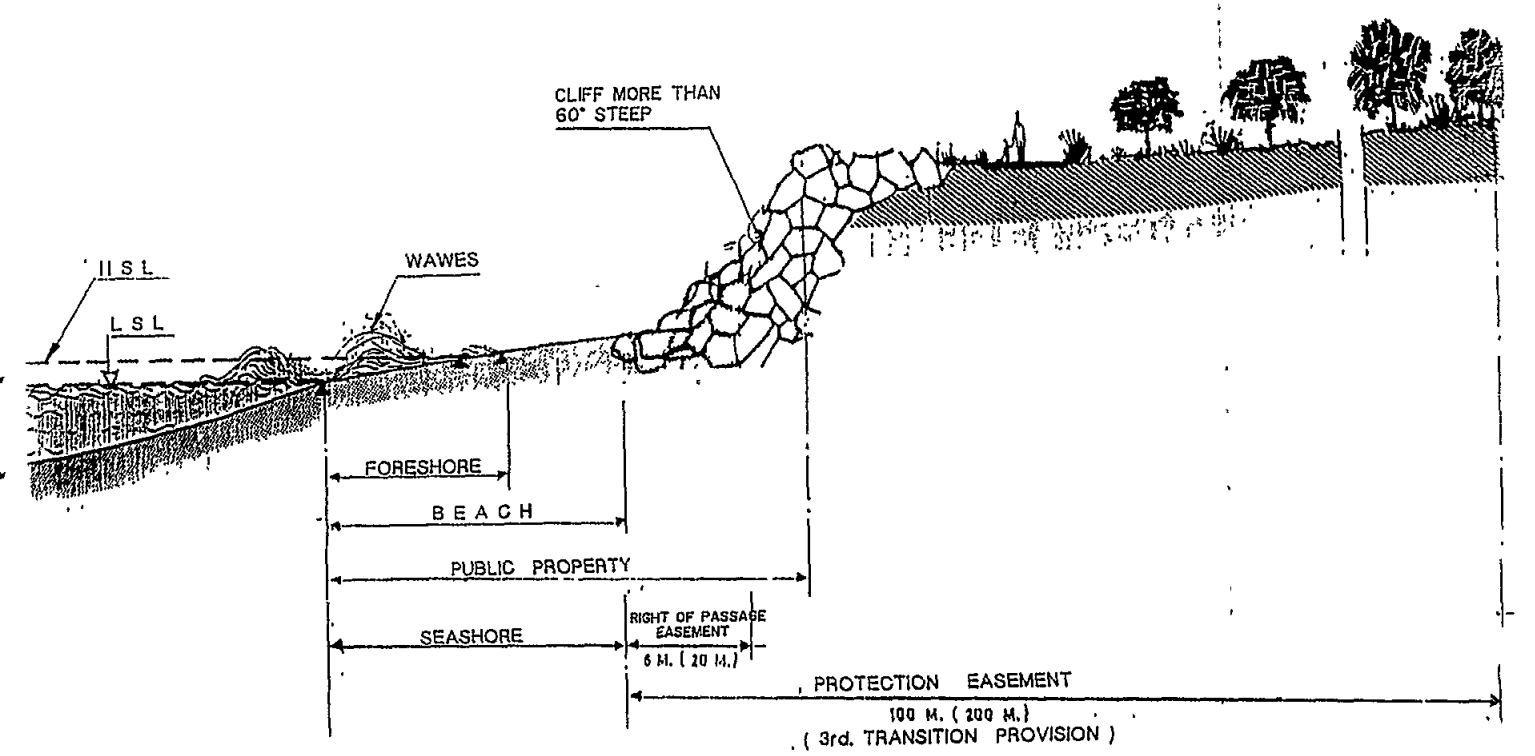

PROMENADE
ROAD
WAWES
DUNE
H S L
L S L
FORESHORE
B E A C H
SEASHORE
PUBLIC PROPERTY
RIGHT OF PASSAGE EASEMENT
6 M. (20 M.)
PROTECTION EASEMENT
100 M. (200 M.)
(3rd. TRANSITION PROVISION)

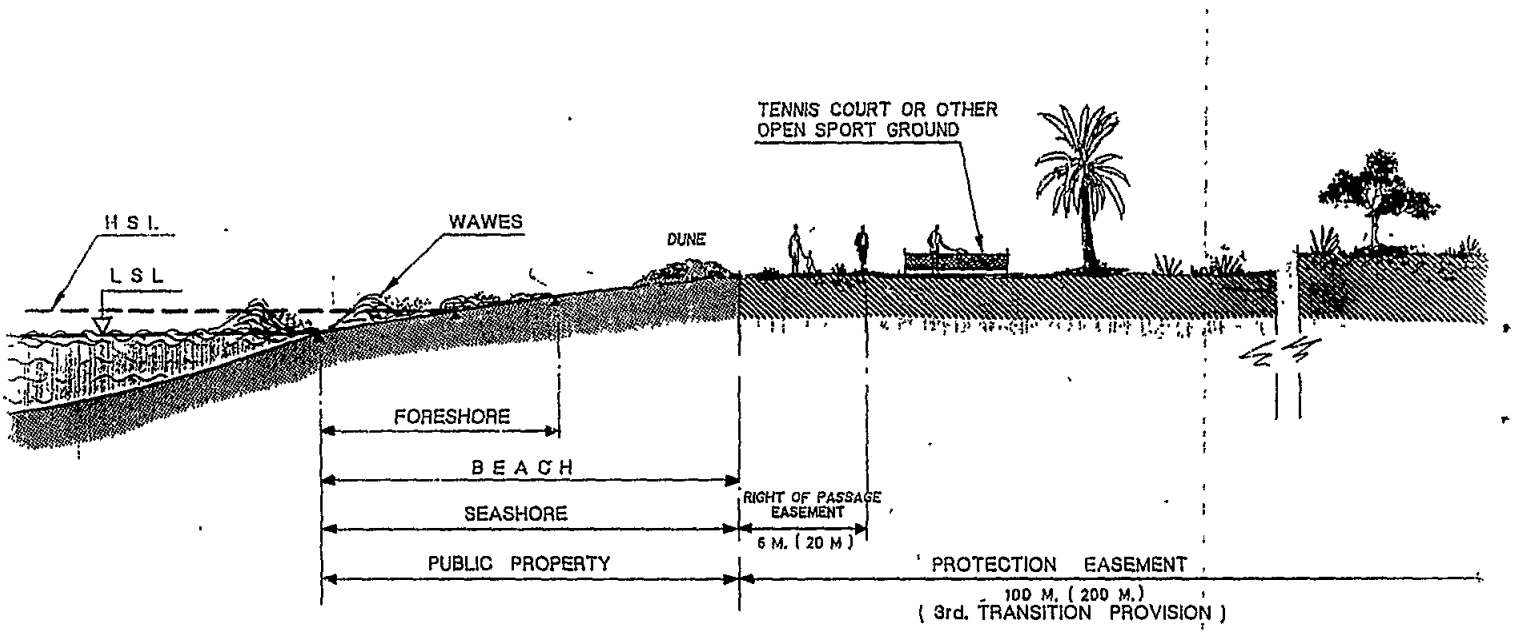

LESS THAN 60°
STEEP CLIFF
H S L
L S L
B E A C H
FORESHORE
SEASHORE
PUBLIC PROPERTY
RIGHT OF PASSAGE EASEMENT
6 M. (20 M.)
PROTECTION EASEMENT
100 M. (200 M.)
(3rd. TRANSITION PROVISION)

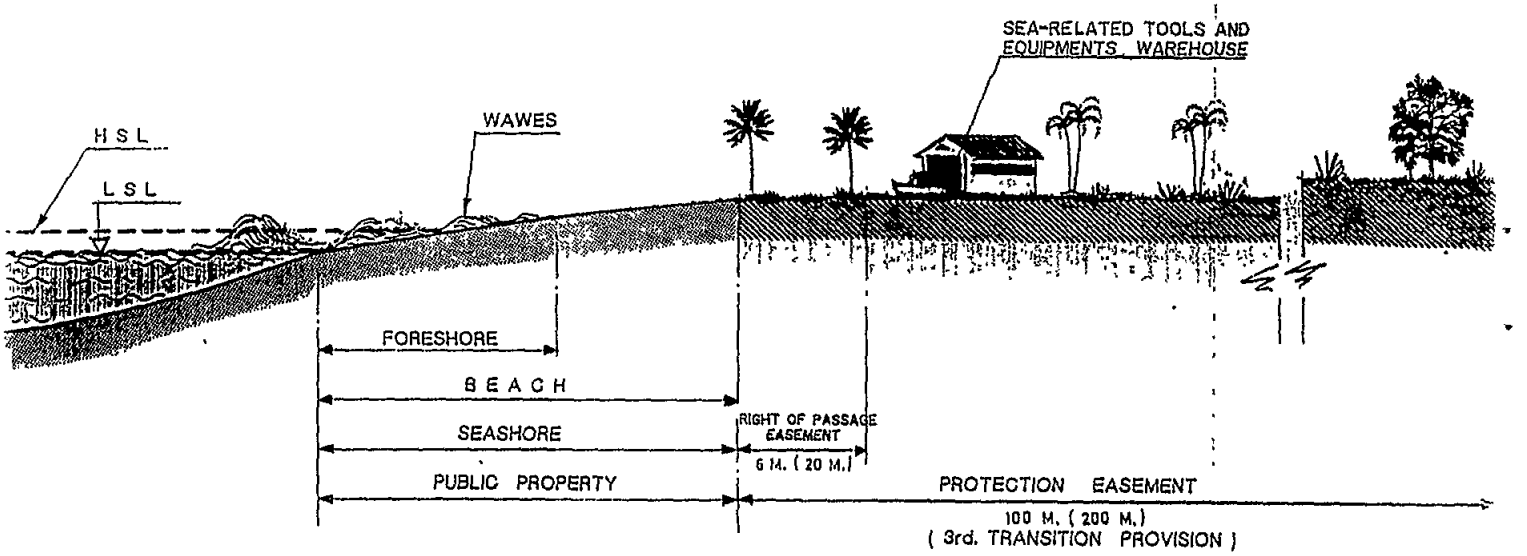

WETLANDS
H.S.L.
WAWES
L.S.L.
BEACH
FORESHORE
SEASHORE
RIGHT OF PASSAGE EASEMENT
6 M. (20 M.)
PUBLIC PROPERTY
PROTECTION EASEMENT
100 M. (200 M.)
(3rd. TRANSITION PROVISION)

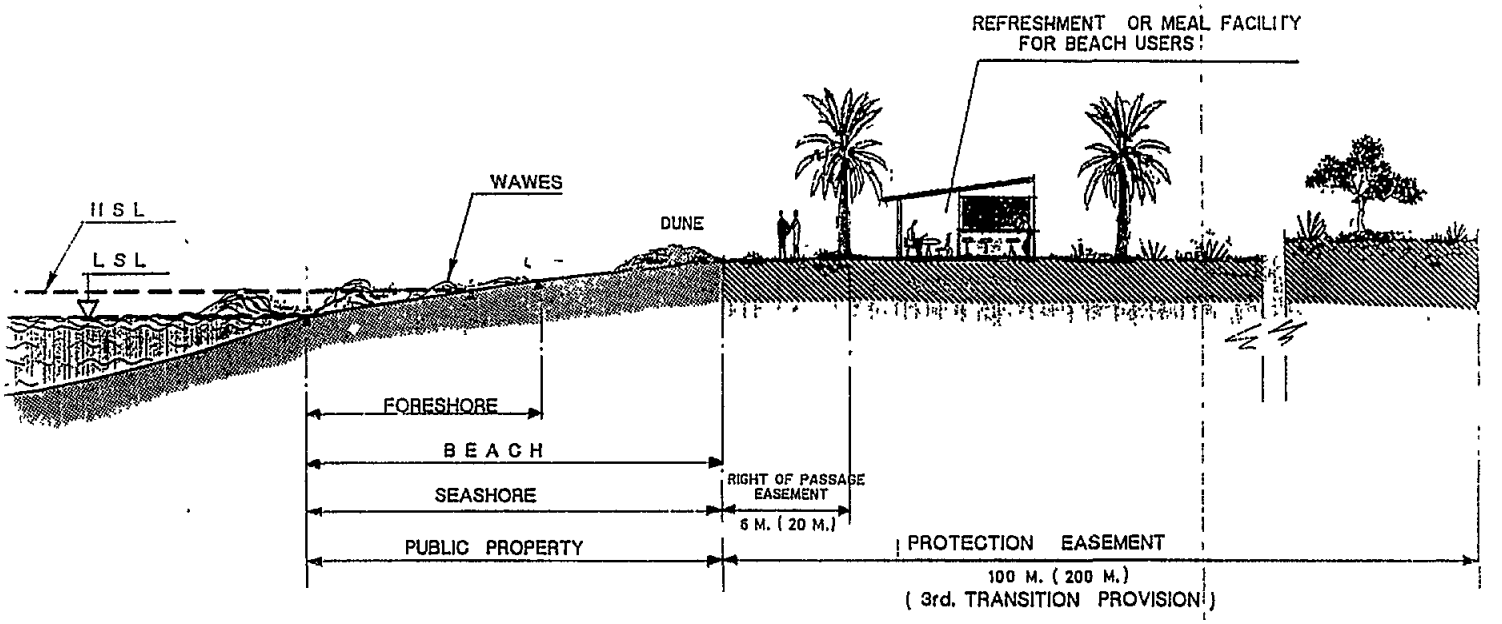

CLIFF MORE THAN 60° STEEP
H.S.L.
L.S.L.
FORESHORE
PUBLIC PROPERTY
SEASHORE
RIGHT OF PASSAGE EASEMENT
6 M (20 M)
PROTECTION EASEMENT


CLIFF MORE THAN
60° STEEP
HSL
LSL
BEACH
FORESHORE
SEASHORE
PUBLIC PROPERTY
RIGHT OF PASSAGE
EASEMENT
6 M. (20 M)
PROTECTION EASEMENT
100 M. (200 M.)
(3rd. TRANSITION PROVISION)


CLIFF MORE THAN
60° STEEP
HSL
WAVES
LSL
FORESHORE
BEACH
PUBLIC PROPERTY
SEASHORE
RIGHT OF PASSAGE
EASEMENT
6 M. (20 M.)
PROTECTION EASEMENT
100 M. (200 M.)
(3rd. TRANSITION PROVISION)


TENNIS COURT OR OTHER
OPEN SPORT GROUND
H S L
L S L
WAWES
DUNE
FORESHORE
B E A C H
SEASHORE
PUBLIC PROPERTY
RIGHT OF PASSAGE
EASEMENT
6 M. (20 M)
PROTECTION EASEMENT
100 M. (200 M.)
(3rd. TRANSITION PROVISION)


SEA-RELATED TOOLS AND
EQUIPMENTS WAREHOUSE
H S L
L S L
WAWES
FORESHORE
B E A C H
SEASHORE
PUBLIC PROPERTY
RIGHT OF PASSAGE
EASEMENT
6 M. (20 M.)
PROTECTION EASEMENT
100 M. (200 M.)
(3rd. TRANSITION PROVISION)


REFRESHMENT OR MEAL FACILITY
FOR BEACH USERS
WAWES
HSL
LSL
DUNE
FORESHORE
BEACH
SEASHORE
PUBLIC PROPERTY
RIGHT OF PASSAGE
EASEMENT
6 M. (20 M.)
PROTECTION EASEMENT
100 M. (200 M.)
(3rd. TRANSITION PROVISION)

ANNEX II

COASTAL WORKS:

PRIORITIES FOR KINDS OF COASTAL WORKS ARE STIPULATED IN SECTION 44 OF SHORE ACT:

- Works on adjoining lands

- Removal or diminishing of barriers to sea trasportation of materials

- Artificial accretion of sand, stones and gravel

- Underwater sea works

- Any other action entailing the smallets

- Possible aggression to the natural environment.

WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of SYRIA

(Contributed by Mr Yahia Awaidah)

NATIONAL REPORT OF SYRIA

(Contributed by Mr Yahia Awaidah)

The Ministry of Environment collaborates with the Government through its local committees, which are directly related to the Government. Both the Ministry and the committees await the enactment of environmental law.

The Ministry of Environment also cooperates with the Marine Research Centre, the coastal basin directorate, and MEDPOL by monitoring marine water and sending monthly reports to the Coordinating Unit in Athens. These groups have also undertaken a comprehensive survey regarding land-based sources of marine pollution.

Through the CRMP, many protected areas have been identified. Currently, many studies and plans have been created to protect these areas with a natural and cultural heritage.

The Ministry of Environment and UNDP have cooperated on the formulation of a national environmental strategy for Syria. Through this cooperation, a comprehensive survey has been done to prepare an environmental profile for the coastal basin. Depending on the analysis of this profile, environmental strategy and an Environment Action Plan will be established for the region. This strategy will provide a framework from which to face environmental challenges in the coastal region and other regions of the country.

METAP will supply the directorate of coastal regions with a project to train staff of GED, and equipment that will allow it to make qualified analyses and studies.

In response to Environmental challenges in the coastal region, the Ministry of Environment has taken several actions summarized as follows.

- Cooperation with the Mediterranean Action Plan by implementing the CRMP program (coastal resources management plan). The result of this program became a plan for management of coastal resources.

- During a local seminar in the coastal region, this plan was distributed to researchers and officials responsible in concerned areas in order to review the results of the study. The plan was also distributed at a national seminar in Damascus. Responsible parties in various ministries and representatives from all government sectors were invited to attend the seminar The results and recommendations of the study were presented so that they might be implemented immediately

- After the national seminar the plan was presented to the Higher Council for Environmental Safety which was headed by the Prime Minister. The council has made many decisions and all related ministries are obliged to enact relevant decisions. In order to ensure the implementation of all recommendations, the Ministry of Environment has recently established a special directorate for the coastal region, which is responsible for observing and enacting recommendations of the study

Through its directorate located in the water basin (especially the coastal region), the Ministry of Environment, has required an environmental impact assessment for all development and local projects.

The Ministry is also seeking to retroactively assess projects completed before its establishment.

The Syrian coastal region is part of the Mediterranean basin and the Eastern Arab world. Within the national geographic framework, the coastal region is clearly defined: its natural boundary (topography, watershed, etc.) runs almost identically as the administrative border defining the two coastal provinces. The coastal area is about 2 percent of the territory (4190 km) with 11 percent of the total population of the country (1.5 million) while its participation in many economic activities is comparatively high (agriculture, some sector of industry, tourism, energy production, transport, etc.). However, its greatest value for the country lies in its natural and man-made resources related to the sea and the coast. The Syrian stretch of the coast is short but it has an enormous importance for the development of a number of coast and sea oriented economic activities. Because of the economic importance, limited physical space and fragility of ecosystems, the coastal area and its resources call for special attention and for careful long-term integrated planning and management.

The coastal Region consists of 4 main cities. The largest city in the Coastal Region is Lattakia, with an estimated population of 286.000 in 1992 (current estimates raise the number to 298.000). The city has grown primarily as a centre for administration and other services and has attracted numerous industries - wood panels, electric motors, textiles, gypsum, marble, tobacco etc. - becoming the city with the most diversified industrial base of the Region. Furthermore, the city has one of the two major ports of the Region. Tartous, with population of around 80.000 (current estimate for Tartous: 85.000), is the second largest urban centre. It has developed as an industrial centre of national importance - including several heavy industries such as cement and an oil terminal. The port of the city is the second largest one in the Region, used mainly for the export of phosphates. Jableh, with population of around 60.000 (current for Jableh: 62.500), is the third largest urban centre of the region, growing primarily as the main agricultural centre of the region. The fourth largest city, Banias, with population of around 30.000 (current estimates for Banias: 31.000) is one of the main industrial centres of the country -primarily due to the location of an oil refinery and a thermal energy station. The Banias port terminal is used primarily for import-export of oil derivatives. The rest of the Region has populations of less than 10.000 persons each.

From the environmental point of view, the areas critically exposed to pollution and to other forms of environmental degradation are the following:

The City of Lattakia: sea pollution generated by industries and high concentrations of urban activities (sewage and open dumping sites).

The City of Banias: sea pollution (discharges from the oil terminal and thermal plant), air pollution (oil refinery, power plant), and high concentrations of urban activities (sewage).

The City of Tartous: sea pollution (solid wastes, oil, phosphate) and air pollution (cement, phosphate) generated by industries and high concentrations of urban activities (sewage).

Nahr-el-Kebir, Ash-Shemali: massive destruction of the beach for sand extraction; destruction of wetlands.

Al-Seen spring: contaminated by microorganisms, pesticides and fertilizers, and endangered by the excessive growth of large aquatic plants, putting at risk the water supply of a large area.

THE INDUSTRY

The coastal region contains many heavy industries of national importance:

- The Tartous cement company with production 2 MTLY - 50% of national production.
- Tartous oil terminal, with capacity of 4 MTLY.
- Basins oil refinery, with capacity of 6 MTLY - 50% of Syrian production of oil.
- Banias thermal power, with 4 turbines of 170 MW capacity each, accounting for 35-38% of Syrian production of thermal energy and covering 30% of national needs.

In addition to these, several significant industries are located in Lattakia (wood panels factory, electric motors factory textiles, gypsum, marble, tobacco, tannery, aluminium, etc.).

TOURISM

Tourism today is an activity of relatively limited scope, consisting mainly of second homes and domestic tourism. Prospects for future development, however, are strongly positive and it is generally thought that the future of the region depends on tourism.

The main assets of the region that define its relative advantage for tourism development are the mild (Mediterranean) climate and 183 km long coast line, which includes sand and pebble beaches of approximately 90 km length, the most important of which are:

- 25 km between Tartous and the Lebanese mostly sand;
- 13 km south of Lattakia, sand with large sand dunes;
- 10 km at the far north, between Badrousiyeh and Ras al Bassit;
- beaches in Umit Tiur, Wadi Qandeel, Ras Ibn Hani .

The negative aspect of current development is the construction of houses near the beach.

JOURNEES D'ETUDE SUR LES POLITIQUES
DE DEVELOPPEMENT DURABLE DES ZONES COTIERES
DE LA MEDITERRANEE
26-27 avril 1996 - Ile de Santorin, Grèce

Rapport National de TUNISIE

Ministère de l'Environnement et de l'Aménagement du Territoire

RAPPORT NATIONAL DE TUNISIE

Ministère de l'Environnement et de l'Aménagement du Territoire

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Informations Générales

1. *Longueur du littoral*

Le littoral tunisien s'étend sur 1300 Km de côte qui se subdivise en quatre grandes zones :

- La côte Nord
- Le golfe de Tunis
- Le golfe de Hammamet
- Le golfe de Gabès.

Toute cette côte est bordée par huit îles dont les plus importantes sont les îles de Jerba et de Kerkenna et de la Galite. Un certain nombre de lagunes et de sebkhas bordent l'intérieur de la côte.

1.1 Caractéristiques principales de la zone côtière

La côte constitue en elle-même l'une des ressources naturelles les plus importantes et son exploitation constitue l'une des composantes principales de l'activité socio-économique du pays.

Le littoral tunisien sert effectivement de cadre de vie à une population de plus en plus importante et continue à exercer une attraction considérable et des migrations intérieures importantes qui exercent une pression de plus en plus grande sur le littoral. Il joue aussi un rôle de plus en plus important dans l'implantation industrielle

1.1.1 Ressources importantes

Les ressources importantes sont de deux catégories; les ressources naturelles et les ressources provenant des activités socio-économiques

a) Les ressources naturelles de la zone côtière:

- Nappes d'eau souterraines
- Eaux superficielles : oueds, retenues colinéaires
- Zones naturelles côtières : parmi les 5 parcs nationaux et la vingtaine de réserves naturelles tunisiennes, 5 sont côtiers ou marins. Ces aires protégées jouent un rôle important dans la conservation de la biodiversité en Tunisie.

b) Les activités socio-économiques:

- L'aquaculture
- La pêche
- L'agriculture : les 2/3 des terres agricoles sont sur la côte
- Le tourisme : 60% des installations touristiques sont littorales
- Les loisirs.
- L' industrie : 70% des unités industrielles sont sur le littoral

1.1.2 Zones et sites présentant un intérêt particulier du point de vue environnemental

Les zones et sites situées sur le littoral tunisien présentant un intérêt particulier du point de vue environnemental se caractérisent par :

- les zones humides.

- les zones touristiques telles que notamment Tabarka, le golfe d'Hammamet, le golfe de Tunis Gammarth, Jerba, Sousse et Mahdia.

- les sites archéologiques : le littoral tunisien est doté d'un patrimoine culturel particulièrement riche par sa diversité géographique et par sa civilisation (lithique, punique, romaine, byzantine et arabe). Ce patrimoine culturel et archéologique fait partie et étroitement lié à l'environnement et essentiel pour le développement du pays. Cependant cet espace archéologique peut être lui aussi menacé par la pression de l'urbanisation. Il nécessite de ce fait des mesures de protection, de conservation et de restauration.

Parmi ces sites archéologiques, on peut citer notamment :

- les sites archéologiques tels que Carthage, Kerkouane, Monastir, Mahdia, le colisée d'El Jem, Lamta et Jerba
- l'île de Chekly
- les oasis côtières de Gabès, les paysages insulaires de Jerba et Kerkennah
- Thyna
- les médinas des villes côtières.

2. Population

D'après les derniers recensements de l'Institut National de la Statistique (INS, 1994), environ 60% de la population tunisienne réside dans les zones côtières, soit 6 millions de personnes.

2.1.1 Densité de la population

Toujours d'après les statistiques de l'INS, la densité de la population vivant dans les zones côtières du pays est estimée à environ 65 h /km2.

2.1.2 Activités économiques

Les activités économiques les plus importantes rencontrées dans les zones côtières se répartissent sur trois secteurs d'activités :

- les activités touristiques : le tourisme;
- les activités Industrielles : l'industrie chimique
  l'industrie pétrolière
- les activités agricoles : les activités agricoles et aquacoles.

2.1.3 Les activités de ces trois secteurs (touristique, industriel et agricole) représentent 70% des activités économiques nationales.

3. Développement de la zone côtière

Toute la côte tunisienne peut être considérée comme intensément exploitée, sauf quelques zones qui sont encore à l'état relativement naturel à savoir les sebkhas qui se comportent comme des zones humides, le lac Ichkeul, les caps Sirat et Négro, El Haouaria, Kélibia, Selloum, Hergla, Sebkhat El Bibane

3.1.1 Développement intensif

La zone du Sahel (le centre de la côte) a connu un développement intensif par l'activité du tourisme.

3.1.2 Développement naturel

Dans le nord (forêts) et le sud (oasis, sebkha), la proportion de développement est maintenue dans un état relativement naturel. Cependant, cette proportion est décroissante en allant de la côte vers l'intérieur du pays, vers l'ouest

3.2.1 Problèmes saillants des zones côtières

Les problèmes les plus importants des zones côtières concernent notamment la disponibilité des ressources en eaux et en sol, la qualité de l'environnement, la construction anarchique, (la surpopulation), les risques naturels, la contradiction au niveau de l'utilisation des ressources.

4. Réponses politiques et pratiques

Plus de 40% (aires protégées, parcs nationaux ...) de la zone côtière fait l'objet d'une attention particulière de la part autorités politiques et techniques

Un programme national est conçu dans ce but et concerne notamment :

- la promotion des parcs nationaux existants;
- la création d'aires protégées. Des aires côtières et marines protégées sont créées pour conserver un certain nombre d'écosystèmes fragiles et des espèces menacées;
- la création de réserves naturelles et sanctuaires biologiques.

4.1.1 Définition juridique et administrative des zones côtières

Récemment, la Tunisie a renforcé son action de protection du littoral en élaborant une charte du littoral, un code de l'urbanisme et de l'aménagement du territoire et en créant une Agence nationale de protection et d'aménagement du littoral.

4.1.2 Base et mesures de protection du littoral

- La protection se base sur l'exploitation rationnelle des domaines publics maritimes.

- Les mesures entreprises pour la protection du littoral sont essentiellement :

  1) l'adoption de réglementations pour l'organisation de l'exploitation des ressources halieutiques;
  2) l'établissement d'un réseau de suivi de la qualité bactériologique des eaux littorales;
  3) l'inventaire de l'état des côtes et du littoral.

- Les mécanismes mis en place pour imposer la protection du littoral sont :

  1/ En premier lieu; la promulgation d'instruments techniques et juridiques tels que :

  le Schéma directeur d'aménagement du territoire (SDA) qui alloue rationnellement les différentes ressources aux différents agents de développement, éliminant ainsi les conflits éventuels entre ces différents agents;

  la loi tunisienne sur le littoral;

  la charte du littoral.

  2/ En deuxième lieu; la création d'organismes et Institutions ayant pour rôle la protection et la surveillance continue de la qualité de l'environnement sur tout le littoral tunisien. Ces institutions sont

  le Ministère de l'environnement et de l'aménagement du territoire, chargée de la gestion et de l'aménagement du territoire ;
  l'Office national de l'assainissement qui assainit et contrôle les effluents du littoral;
  l'Agence nationale de protection de l'environnement qui contrôle la pollution et surveille l'état de l'environnement du littoral;
  l'Agence de protection et d'aménagement du littoral qui veille à l'application de la charte et de la loi du littoral.

  3/ En troisième lieu, la collaboration entre tous les organismes et institutions concernés par cette protection, pour la mise en oeuvre de la politique nationale pour la protection du littoral. Ces organismes sont principalement:

  le Ministère de l'environnement et de l'aménagement du territoire;
  l'Office national de l'assainissement (l'ONAS);
  l'Agence nationale de protection de l'environnement (ANPE);
  l'Agence de protection et d'aménagement du littoral (APAL);
  le Ministère de l'agriculture;

le Ministère de l'équipement;
le Ministère de l'intérieur;
le Ministère de la défense nationale.

5. Politique spécifique pour les zones côtières

L'approche globale préconisée par la stratégie actuelle est la planification intégrée de l'aménagement du littoral dans le cadre de l'aménagement du territoire des grandes régions et des programmes de développement socio-économique.

5.1.1 Politiques à objectif spécifique

La Tunisie dispose d'une nouvelle politique fondée sur la protection effective du domaine public maritime;

- la conservation des zones naturelles en équilibre et la gestion rationnelle de l'espace côtier en vue de mieux valoriser les infrastructures et équipements supportant le secteur touristique;
- la création de parcs nationaux;
- la création d'aires protégées (Madfoun Hergla).

5.1.2 L'exploitation des ressources en eau douce des nappes superficielles est très réglementée pour garantir la protection de ces dernières contre l'infiltration des eaux salées. Des périmètres de sauvegarde sont ainsi institués ainsi que des programmes de recharge artificielle des nappes sont en cours de mise en oeuvre.

6. Politiques d'aménagement

6.1.1 Les politiques d'aménagement au niveau des zones côtières s'intègrent dans la politique nationale d'aménagement du territoire et la protection de l'environnement. Toutefois la zone littorale fait l'objet de mesures spéciales dans ce domaine par l'identification des zones sensibles et l'élaboration de programmes spécifiques de protection.

6.1.2 La responsabilité de la planification de la gestion des zones côtières incombe en premier lieu au Ministère de l'environnement et de l'aménagement du territoire et en collaboration avec les instances nationales (Ministère de l'équipement et de l'habitat), les instances locales (les communes), et les instances régionales (conseils régionaux).

La gestion proprement dite se fait à travers l'intervention des opérateurs publics l'ANPE et l'APAL qui assurent le contrôle, l'ONAS (protection du milieu hydrique), l'ONTT et l'AFT (zone touristique et plages balnéaires), les services du Ministère de l'équipement (habitat, port, domaine public maritime), les CRDA (pour la gestion des ressources naturelles et agricoles), les communes et les conseils régionaux.

6.1.3 Toute la population est également responsable de la bonne gestion de la zone côtière. C'est pourquoi, toutes les instances impliquées veillent à sensibiliser l'opinion publique pour l'application de la réglementation en vigueur.

6.1.4 Les organisations non gouvernementales (ONG) et le secteur privé jouent aussi un rôle important dans la gestion des côtes par l'organisation de congrès et de manifestations

relatives à la gestion des côtes ainsi que par la publication d'affiches, de dépliants et de brochures en vue de sensibiliser le public.

7. Mesures politiques et instruments réglementaires

Les instruments disponibles pour la gestion côtière sont essentiellement :
la loi n° 94 -13 du 31 janvier 1994 relative à l'exercice de la pêche qui protège entre autres, les espèces aquatiques. Cette loi est complétée par d'autres textes dont notamment l'arrêté du Ministère de l'agriculture relatif à l'exercice de la pêche et qui réglemente l'exploitation des espèces de poissons, de mollusques et d'éponges. Ce texte protège également le phoque moine, les tortues marines et les cétacés; la charte du littoral; le code de l'urbanisme et de l'aménagement du territoire du 31 janvier 1995; la loi de création de l'Agence de protection et d'aménagement du littoral.

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7.1 Les instruments économiques appliqués par le Gouvernement

Des encouragements aux investissements et des mesures d'allégements fiscaux sont octroyés à ceux qui investissent en dehors des zones critiques du littoral appliqués pour la gestion des zones côtières.

8. Les politiques de développement

Les politiques de développement et les procédures de surveillance des zones côtières se font en coordination avec l'ensemble des structures responsables. Les politiques sectorielles du développement tiennent compte de l'environnement. L'institution de l'étude d'impact et des évaluations environnementales préalables à l'installation des projets de développement sont un outil préventif pour intégrer la dimension environnement dans le projet de développement. L'existence de l'aménagement du territoire au sein du Ministère de l'environnement est également un autre outil permettant de prendre en considération les préoccupations de l'environnement lors de la planification du développement.

8.1 La Direction des études et projets de l'ANPE est chargée de faire l'évaluation de l'impact des projets sur l'environnement des zones côtières.

La Direction "Contrôle dépollution" de l'ANPE est chargée de son côté de contrôler les zones industrielles côtières et d'assurer un suivi rigoureux du contrôle relatif à la conformité aux normes tunisiennes des rejets industriels et accélère la dépollution.

L'APAL est chargée de la conservation et l'aménagement des zones côtières critiques.

9. Mise en oeuvre des politiques et plans de développement

Les politiques et plans de développement sont mis en oeuvre aussi bien à l'échelle locale (communes, délégations), nationale (état) qu'internationale (conventions).

9.1.1 Problèmes au niveau de l'application

Un des principaux rôles de la nouvelle Agence (APAL) est d'organiser et d'harmoniser les plans de développement régionaux à l'intérieur du pays et l'installation des zones franches côtières. Elle permet d'assurer une meilleure application des lois et mesures réglementaires prises par les schémas d'aménagement du territoire. L'ANPE et l'ONAS interviennent pour contrôler l'application des réglementations de protection de l'environnement

9.1.2 Les mécanismes de surveillance en ce qui concerne les politiques relatives aux zones côtières sont les experts du Ministère du l'environnement et de l'aménagement du territoire (ANPE : Experts contrôleurs) et (APAL : Experts).

10. Sensibilisation du public

Des programmes de sensibilisation tels que spots télévisés, affiches, brochures et dépliants éducatifs, campagnes de nettoyage et protection des plages ont été conçus et mis en oeuvre en vue de sensibiliser le public à la gestion côtière.

10.1 Des exemples réussis de mise en oeuvre de projets de gestion côtière existent à tous les niveaux (local, régional et national) et concernent divers domaines d'activités :

- protection des plages avec dans le cadre du Programme "Main Bleue" la réalisation et le fonctionnement des stations de traitement de l'ONAS sur tout le littoral tunisien;

- construction des installations de pré-traitement dans les zones industrielles (ex. SITEX).

- programme "Main Verte" : protection de la biodiversité .
  aménagement et création de parcs nationaux situés sur la côte tunisienne dans le but de préserver la flore et la faune de la zone côtière.

Le Parc national du Lac Ichkeul, situé sur la côté nord; l'intérêt de ce site réside surtout dans la particularité de sa flore (plus de 500 espèces végétales dont l'olivier sauvage, le caroubier, le potamogéton et plus de 3 espèces d'orchidées), de sa faune permanente (des milliers de canards, le sanglier, le chacal, la loutre et le buffle d'eau) et de ses oiseaux migrateurs (100.000 à 200.000 oiseaux hivernent chaque année au Parc national de l'Ichkeul).

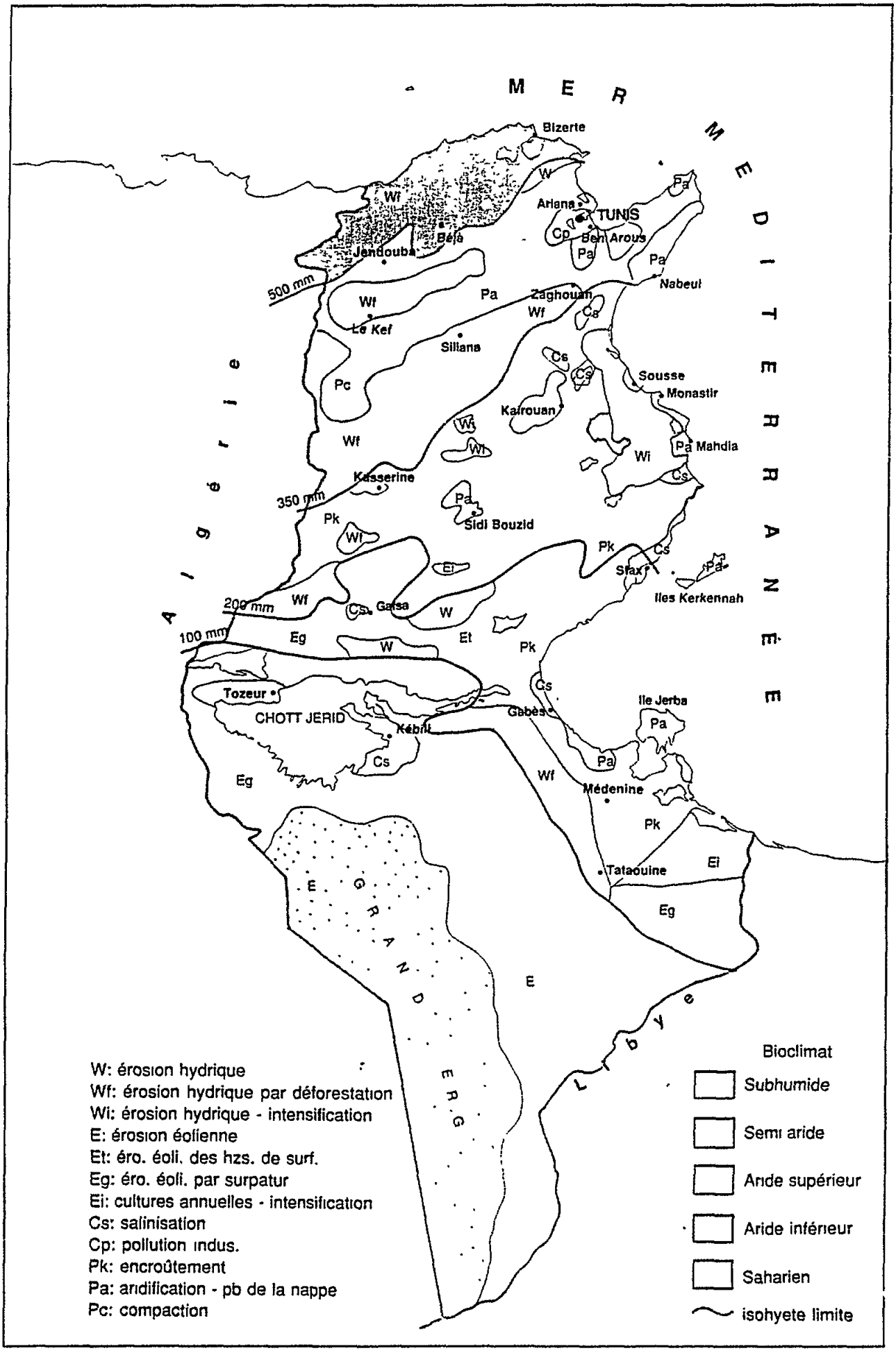
Le Parc national Boukornine, avec plus de 25 espèces de mammifères (dont le sanglier, le lièvre, le chacal et le porc-épic et le plus petit mammifère du monde, la musaraigne étrusque) et sa flore constituée essentiellement de thuya de Berberie, de chênes Kermès, de caroubiers et de pins d'Alep. On y trouve aussi le cyclamen de Perse, plante endémique en Afrique du Nord.

- protection des habitats (zones humides)
  La Tunisie accorde un intérêt particulier à la gestion des zones humides comme habitat et lieu privilégié de transit, d'hivernage et de nichage d'un grand nombre d'oiseaux d'eau. Les zones reconnues de première importance du point de vue de la conservation d'oiseaux des zones humides sont :

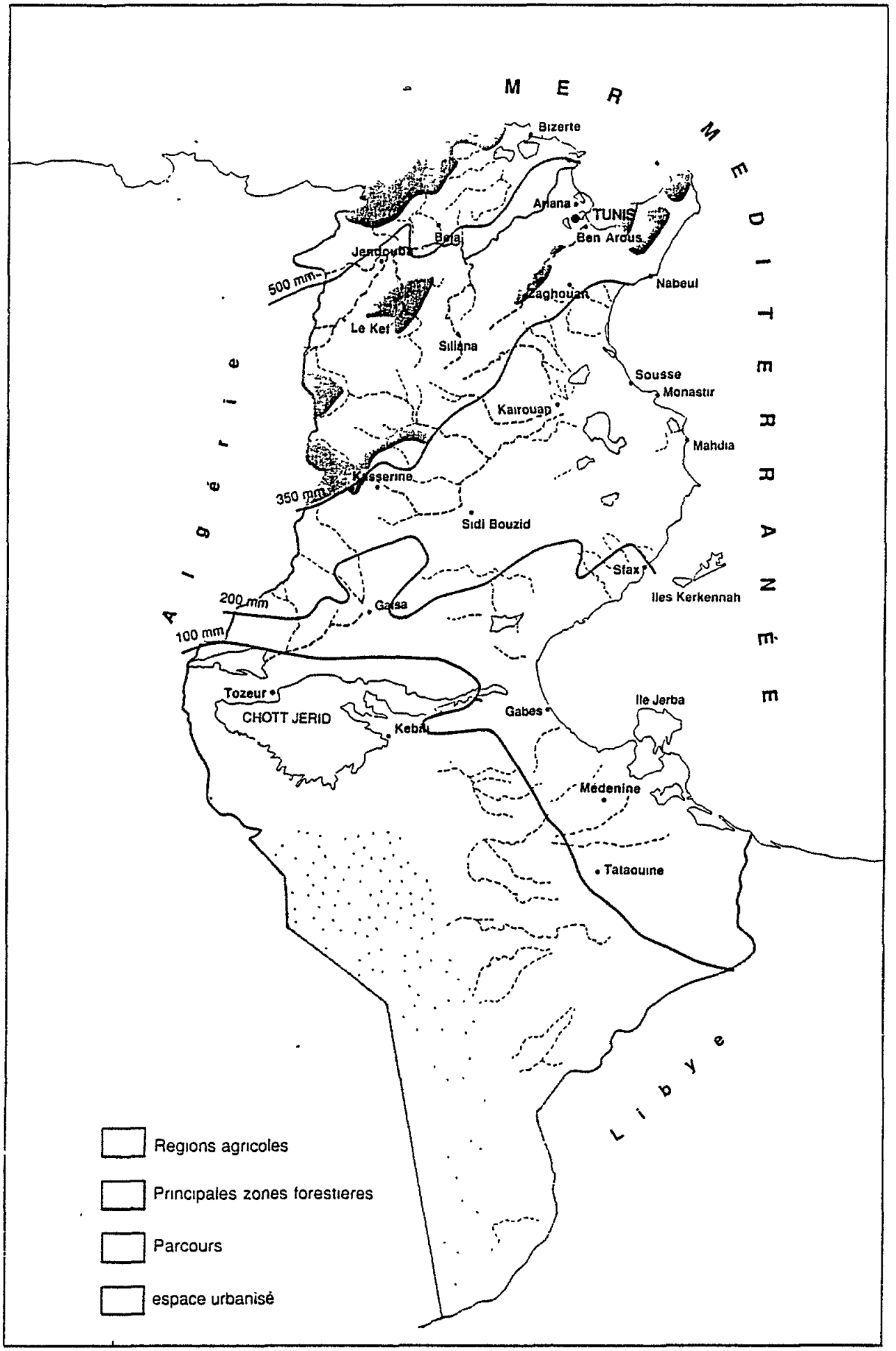
- la lagune de Bahiret El Bibane;
- les kneis, au Nord Est de la skhira;
- la sebkhet Sidi El henni;
- le chott El Fed Jadj.
- le lac Ichkeul,
- les îlots voisins de Jerba;
- la sebkhet El Jem;

- traitement des déchets : mise en place d'un centre de tri et de transfert.

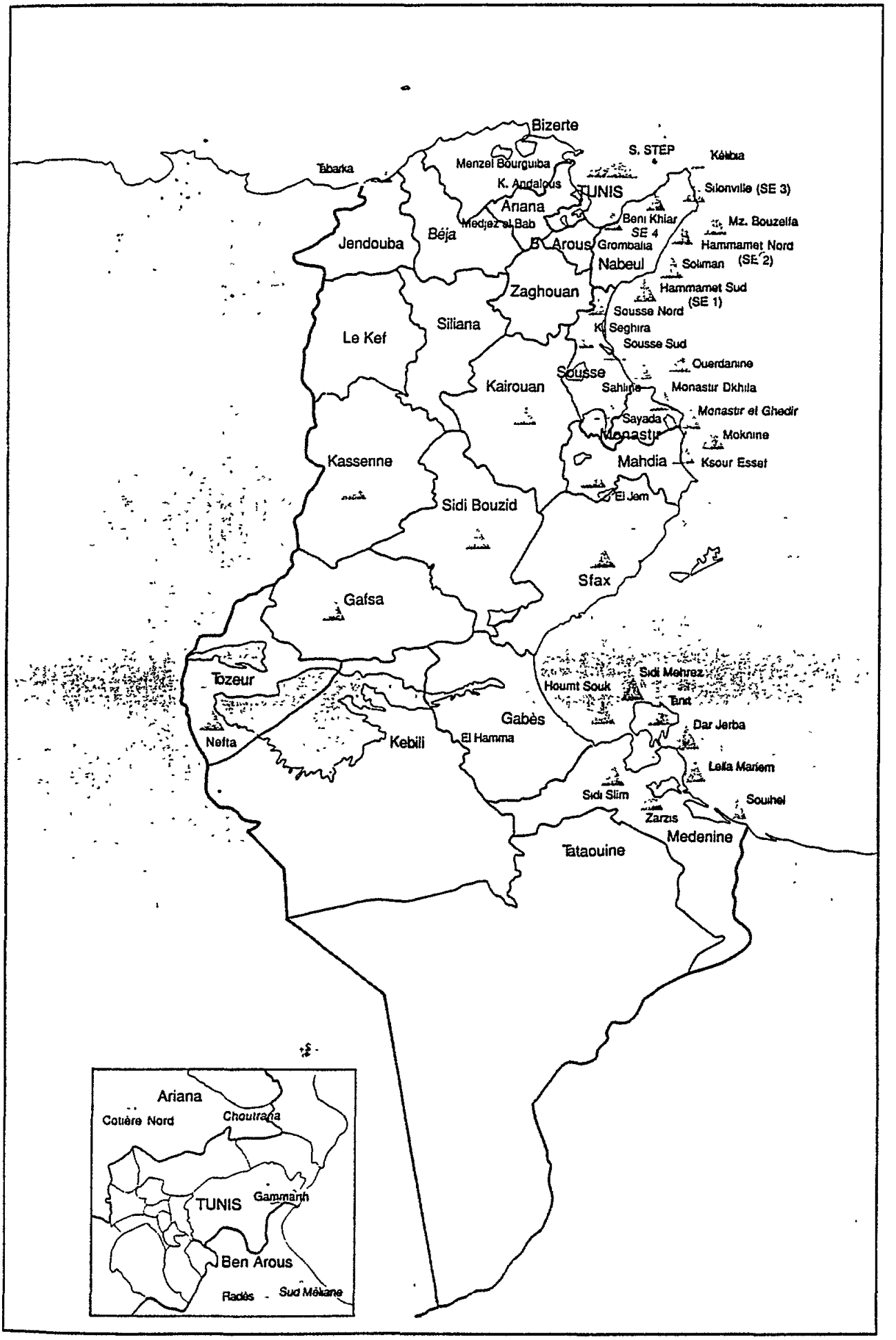
3 - PROCESSUS DE DEGRADATION DES SOLS



4 - OCCUPATION DE L'ESPACE



8 - STATIONS D'EPURATION DES EAUX USEES EN EXPLOITATION



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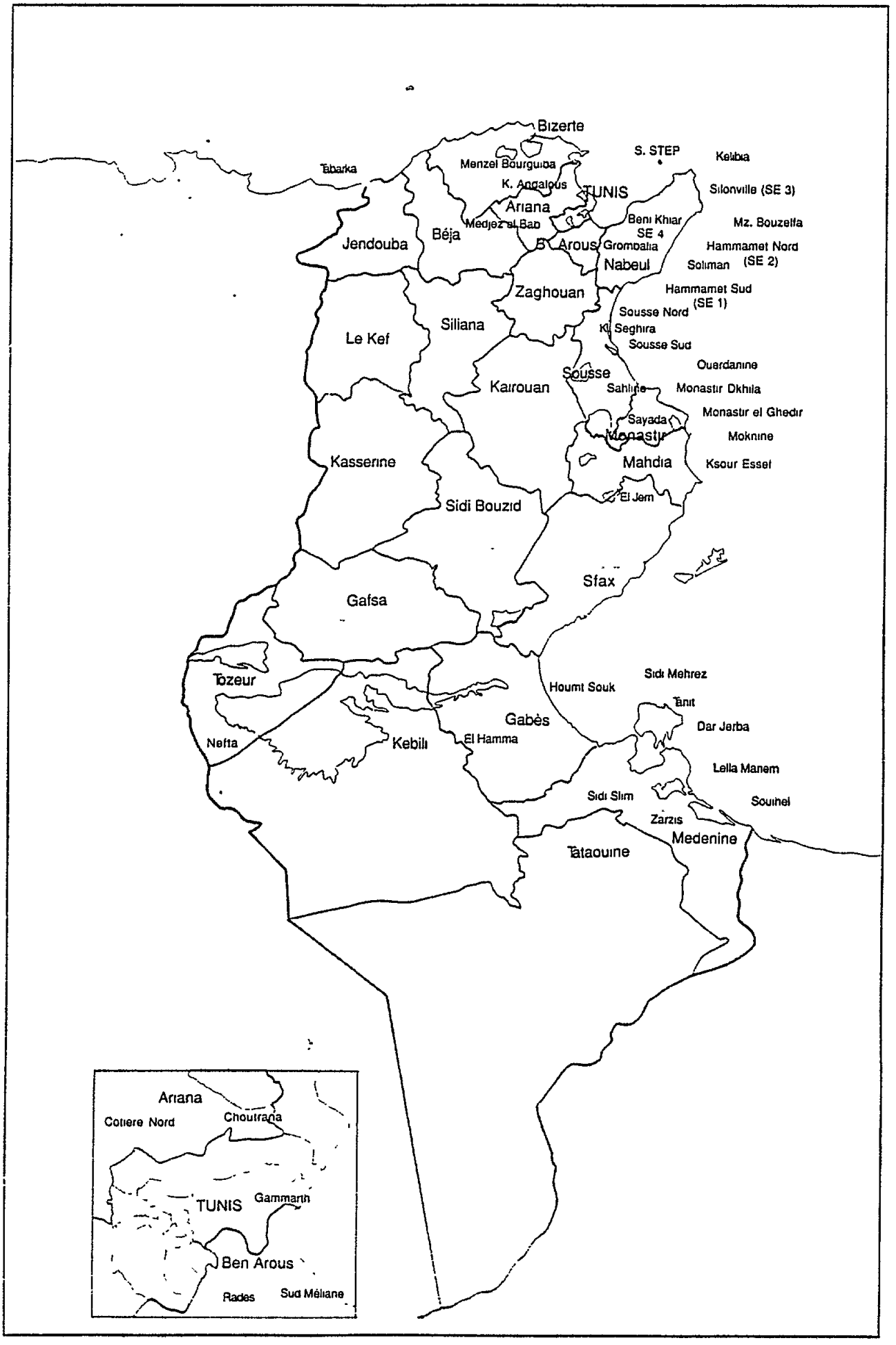
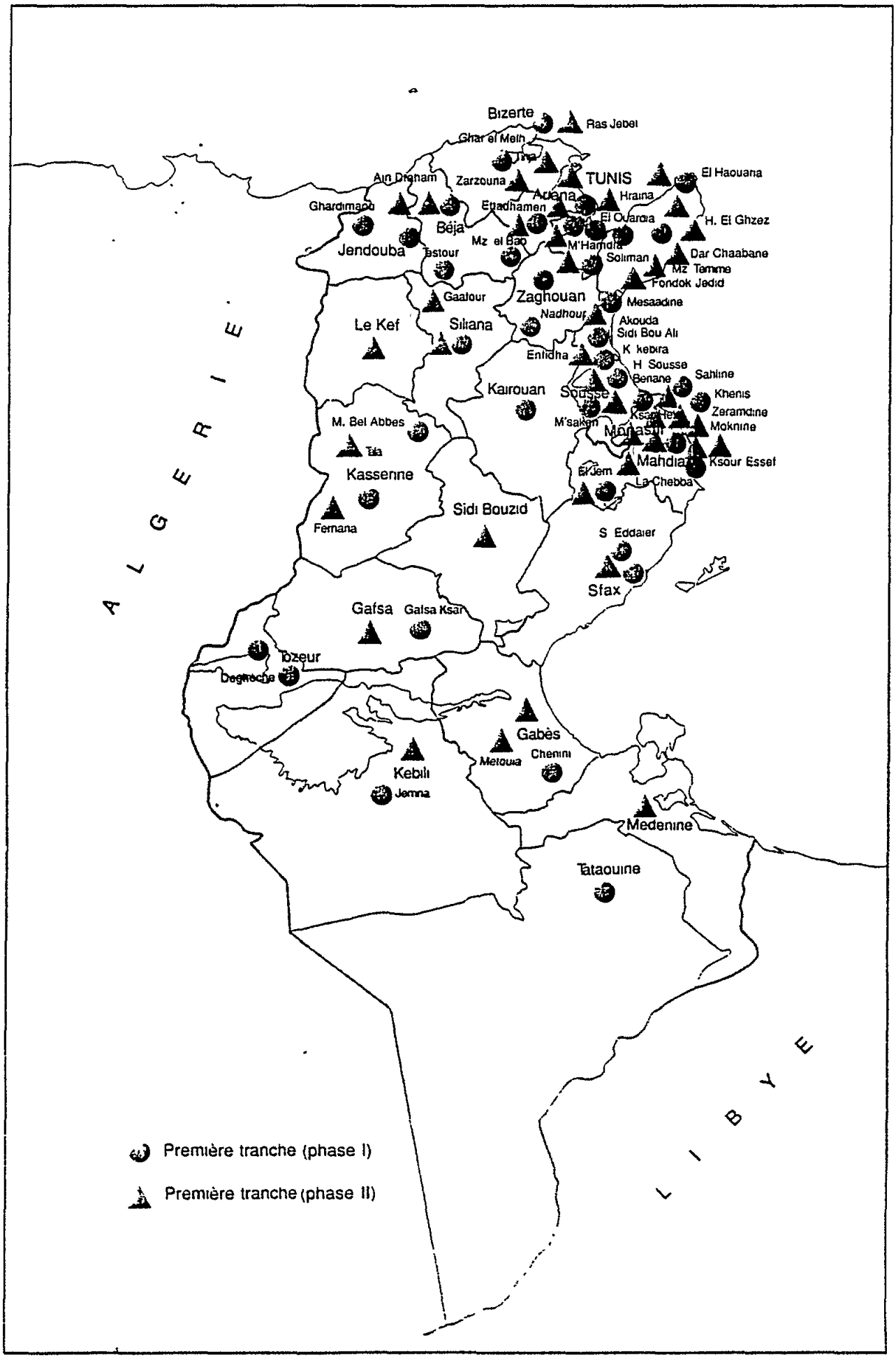
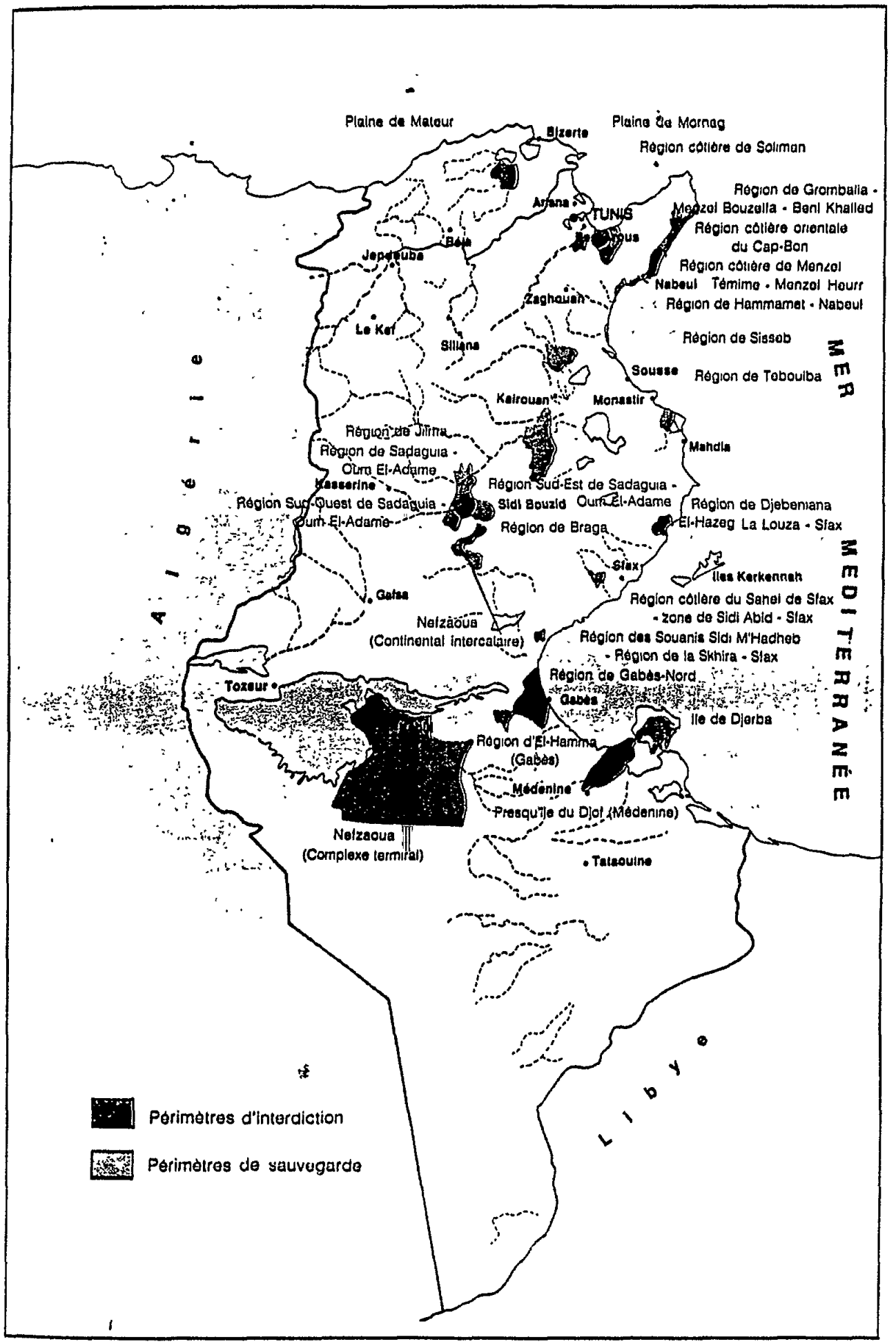


10 -DEUXIEME PROJET D'ASSAINISSEMENT DES QUARTIERS POPULAIRES



2 - PERIMETRES D'INTERDICTION ET DE SAUVEGARDE DES RESSOURCES EN EAUX



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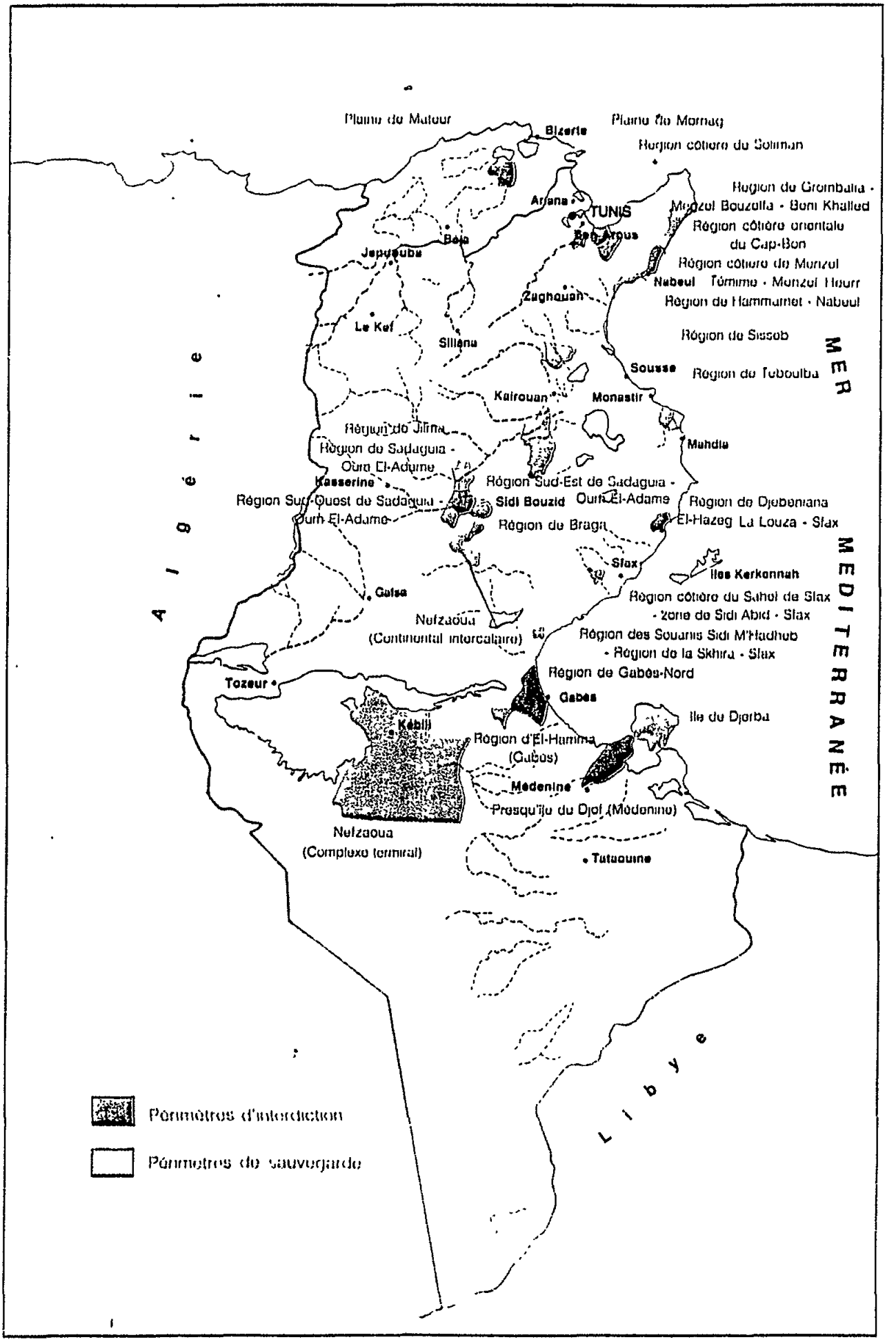

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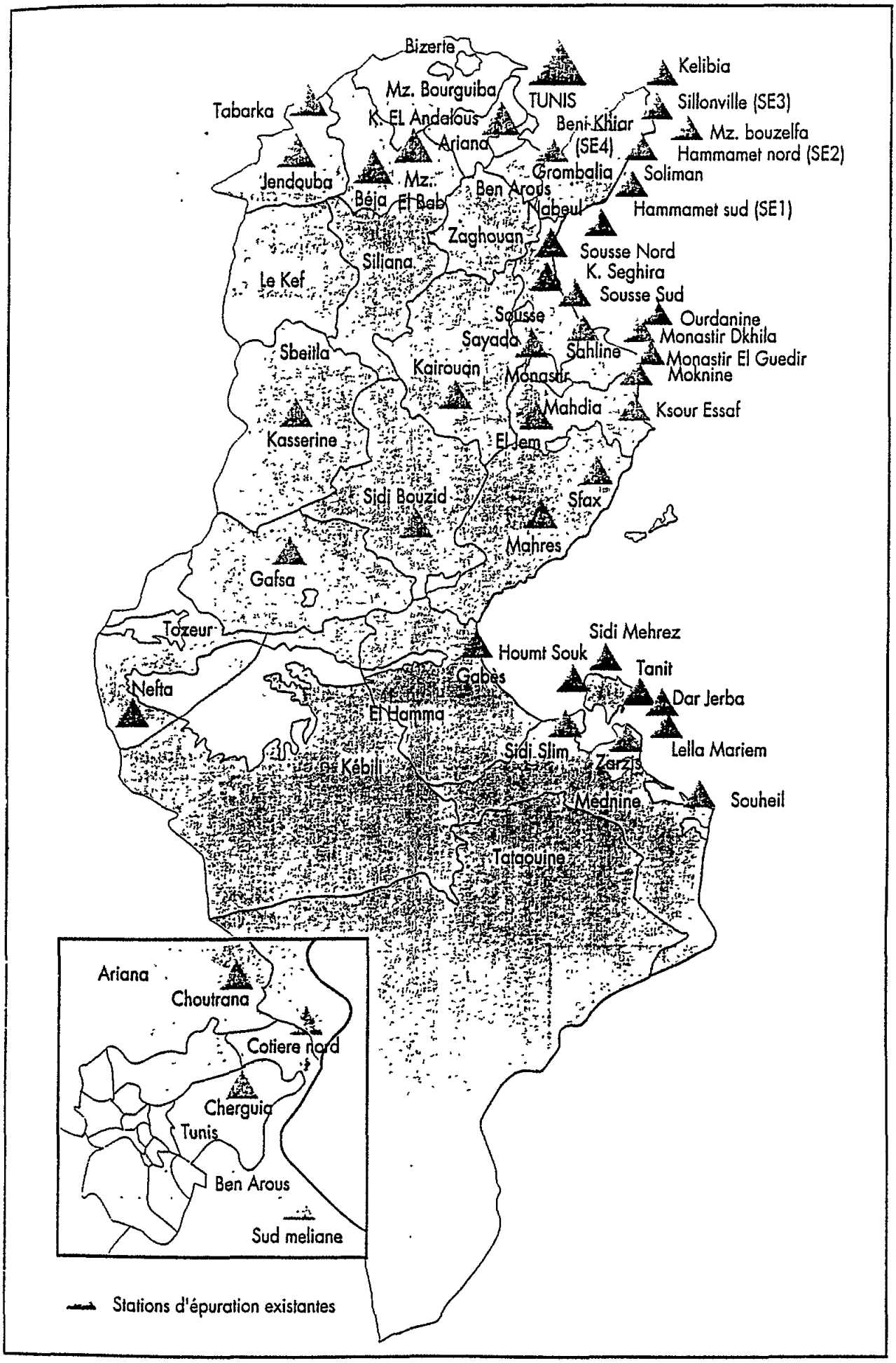
Source ONAS



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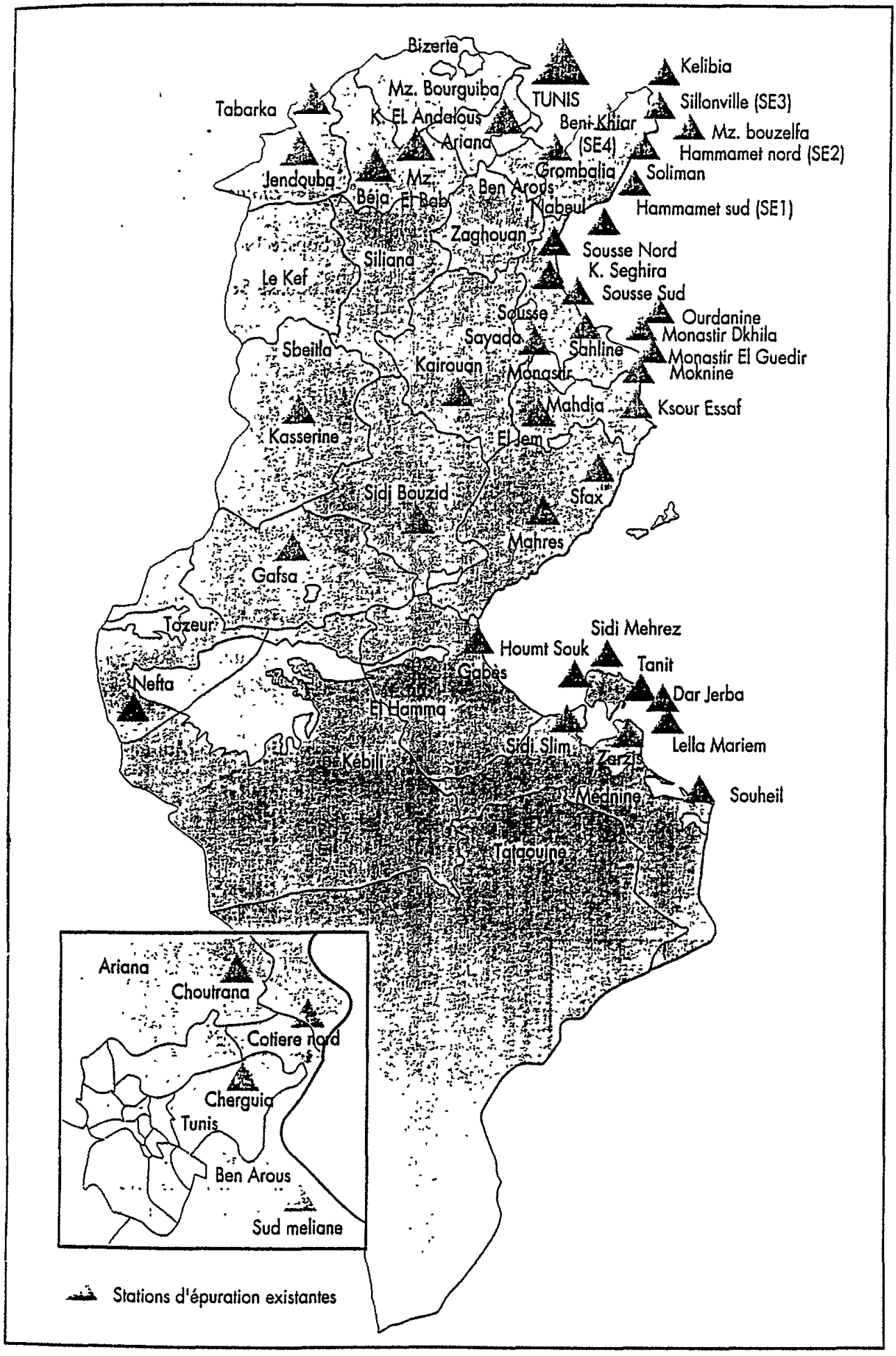

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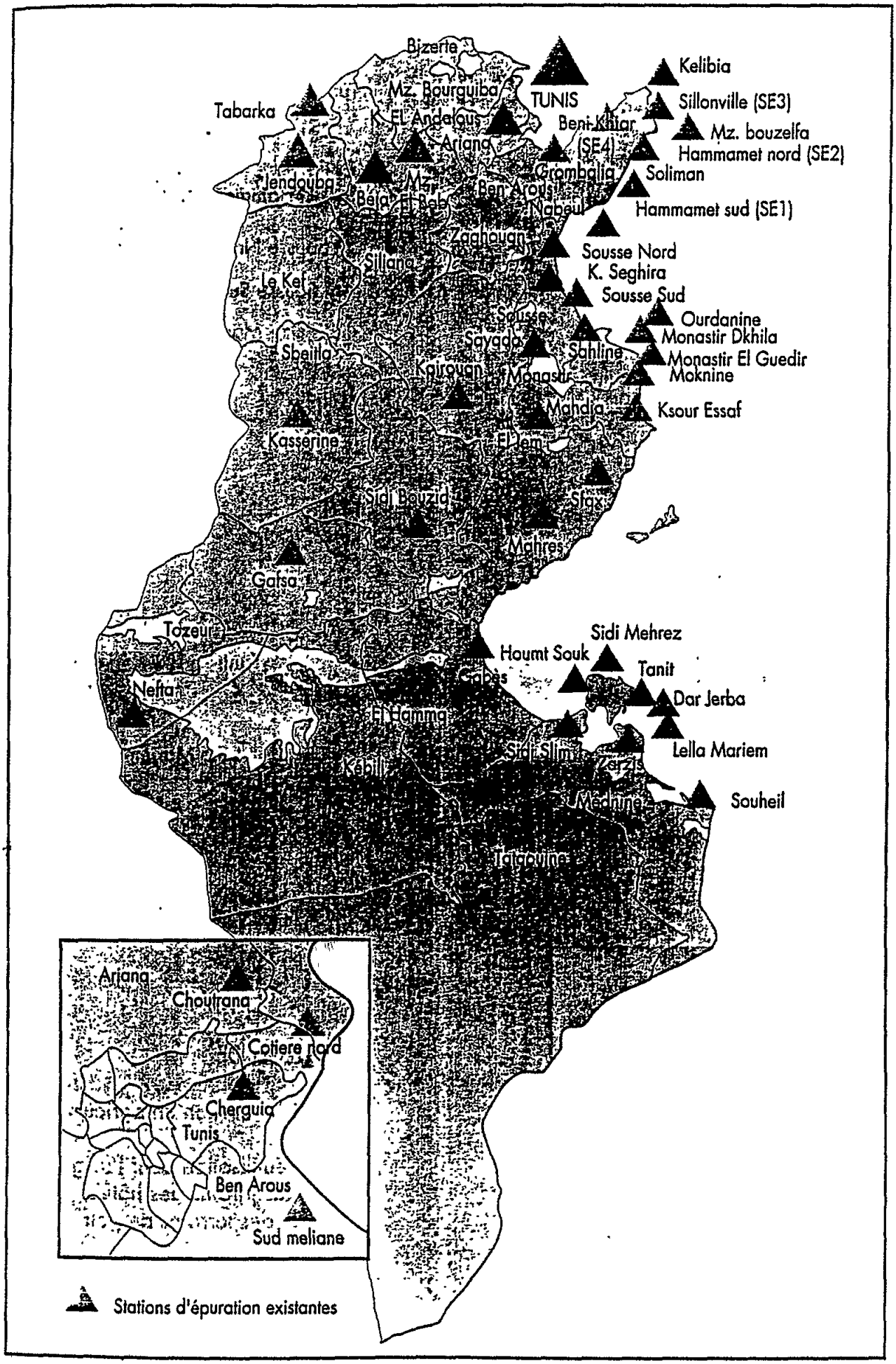

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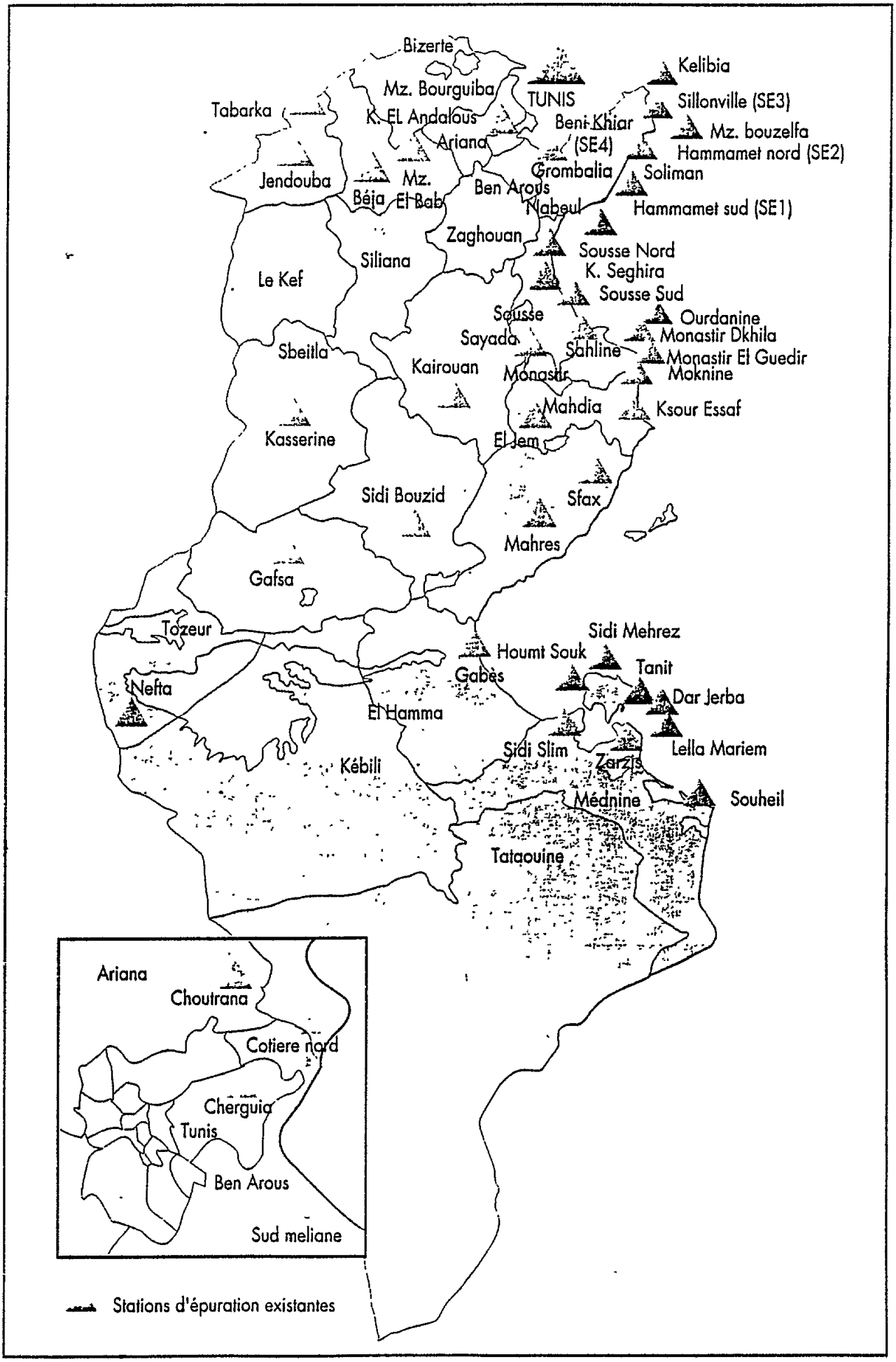

WORKSHOP ON POLICIES FOR
SUSTAINABLE DEVELOPMENT OF MEDITERRANEAN COASTAL AREAS

26-27 APRIL 1996, Santorini Island, Greece

National Report of TURKEY

(Contributed by MS Gülsun Yesilhuyuk)

NATIONAL REPORT OF TURKEY

(Contributed by Ms Gülsun Yesilhüyük)

1. The Turkish Mediterranean Sea Coast extends from Greek border to Syrian border and forms the east boundary of the geographical area for the Barcelona Convention. The length of the Turkish Mediterranean and Aegean Sea coastlines excluding islands, islets, and rocks is 4382 km.[4]

The Aegean region in the west consists of east-west mountain ranges. These run perpendicular to the coastline with fertile alluvial river valleys in between.

In the south, the approach from the high, arid Anatolian plateau to the Mediterranean shore is steep and spectacular. The topography in this region is characterized by mountain ranges running parallel to and nearly adjacent to the sea, with a narrow strip along the sea joining the coastal plains formed by the rivers.

Due to the suitability of its geographical position, climatic conditions and topographic structure, Turkey is one of the few countries where a large variety of species and subspecies can live.

Forest areas are found on the mountains bordering the Aegean and Mediterranean and are located in an altitude belt of 0 to 2000 meters.

3000 endemic species have been recorded in various regions of the country. 631 Mediterranean species are unique to the station where they can be observed.

Turkey possesses the richest wetlands in Europe Country has about 250 wetlands with a total area exceeding 1 million ha. Five important wetlands have been identified for inclusion in the List of RAMSAR Convention and 2 of them is in Mediterranean Region-Göksu Delta and Burdur Lake.

Turkey has 12 specially protected areas (SPAs), 9 of which are located in the Mediterranean coast. (Table 1).

Table 1

Specially Protected Areas in the Mediterranean

SPAs	Gökova	Köyceğiz-Dalyan	Fethiye	Patara	Kekova	Goksu	Datça-Bozburun	Belek	Foça
Area (km^2)	521	385	613	190	260	236	1474	135	28

There are also sites protected by a legal status, characterized by one or several unique, rare or endangered habitats, biogenesis or ecosystem. There are six biogenetic reserves in Turkey and four of which are in the Mediterranean region.

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[4] The maritime boundaries between Turkey and Greece has yet to be delimited Furthermore, apart from those islands given to Turkey and Greece by international treaties, and enumerated in them by name, there are numerous islets and rocks in the Aegean status of which is not clearly defined As there exists a disagreement between Turkey and Greece, in line with our past practice, we have not included the relevant data concerning these islands, islets and rocks in our report However, this approach on the part of Turkey can in no way be interpreted as a renunciation of her rights and claims on them

Mediterranean coasts of Turkey is also nesting area for Sea Turtles (Caretta and Chelonia mydas) and the Nile turtles (Trionyx triungis). The propagation area of Chelonia mydas is limited to a number of beaches (Kazanli, Akyatan and Samandağı) in the Eastern Mediterranean. Caretta, on the other hand, exists in the almost all of the other beaches. Scientific institutions, Society for the Protection of Environment (Turkish NGO) and WWF have identified that sea turtles lay eggs mainly in 17 beaches on the Turkish Mediterranean coast, 5 of which have been designated as Specially Protected Areas-Dalyan, Patara, Göksu Delta, Belek and Fethiye.

The Mediterranean monk seal-Monachus monachus population all over the world is estimated around 400. Turkey is one of the major Mediterranean countries for its suitable habitats for monk seal.

In the Mediterranean Region, there are around 8000 registered buildings and monuments which is 20 % of Turkey's cultural and natural assets. There are 116 urban sites throughout Turkey which are of specific architectural, local, aesthetic and artistic interest, natural and cultural environmental elements and also have a special importance since they structurally posses both of these characteristics and 36 of them are in the Mediterranean Region. 697 of the 2768 archeological sites which are on land or underwater where the ruins of ancient civilizations or the remnants of antique settlements exist or known to exist; 135 of the 310 natural sites which are of natural value or entities to be protected for particular characteristics; and 35 of the 51 historical sites where significant events had been taken place are also in the Mediterranean Region.

In accordance with the provisions of the Genoa Declaration and under the auspices of UNEP, 17 historic sites are included in the list of 100 Historic Sites of common interest in the Mediterranean. These are Antalya, Kaunos, Aspendos, Kekova, Bursa, Knidos, Didyma, Milet, Ephesus, Pergamum, Fethiye-Ölüdeniz, Phaselis, Halicarnassus, Priene, İstanbul, Troia, Xanthos.

2. Turkey's population increased from 13.7 million in 1927 to 56.473 million in 1990 and population of ten provinces bordering the Aegean and Mediterranean coast-Edirne, Çanakkale, Balikesir, İzmir, Aydin, Muğla, Antalya, İçel, Adana and Hatay reached to 11 336 131 which is almost 20 % of total population. The population densities and increase rates are shown in Table 2. Total area of ten cities is 122 723 km^2, and the population who live in city centers and subdistricts-villages are respectively 6 838 131 (60 %) and 4 497 955 (40 %). There are 541 municipalities in the Mediterranean area which indicate 19 7 % of Turkey's total municipalities.

Table 2

Population Density and Growth Rate

Percentage of Mediterranean coastal cities' population in total population (%)	20.54
Population increase rate (%0) -Mediterranean coastal cities -Turkey	 22.14 17.52
Population density (person/km^2) -Mediterranean coastal cities -Turkey	 103 80

Mediterranean cities hold very important place in economic structure of Turkey. To indicate cities' economic significance and the growth rates, their GDP shares are shown in Table 3.

Table 3

GDP Share and Growth Rates of Mediterranean Cities of Turkey (1994)

PROVINCES	Share (%)	Growth Rate (%)
Adana	3.5	105.4
Antalya	2.5	102.8
Aydin	1.5	111.6
Balikesir	1.8	105.9
Çanakkale	1.0	96 1
Edirne	0.7	101.1
Hatay	1.7	104 1
İçel	2.9	86.0
İzmir	7.6	103.2
Muğla	1 5	123.3
Turkey	100.0	95.2

Agricultural production is one of the major economic activities in the coastal provinces, includes all types of products from industrial crops to cereals, fruits, and vegetables. The Aegean region of Turkey produces almost 9.7 % of the country's total wheat production and almost 16.8 % of the country's total barley production. Important industrial products produced in this region are tobacco (60 % of total production), sesame, flax seed, olive and sugar beet. The region produces almost 60% of the total cotton, as well.

Table 4

Breakdown of Agricultural Production in the Mediterranean and Aegean Regions (1992)

	Mediterranean Region	Aegean Region
Crops	Proportion in the total production (%)	Proportion in the total production (%)
Cereals	64.5	58.5
Industrial Plants	29.0	24.5
Fruits and Vegetables	6.5	12.0

The country's very long coast line endows very important potential for fisheries and the fishery products capacity is shown in Table 5.

Table 5

Fishery Production

	1985			1990			1994		
Fishery products (tons)	Turkey	Mediterranean coastal area	%	Turkey	Mediterranean coastal area	%	Turkey	Medit coastal area	%
Catch of sea fish	519,911	32, 911	6.33	297,123	44,894	15 11	491,335	50,993	10.37
Catch of crustaceans molluscs	12, 692	2, 691	21 2	55,229	10,747	19 46	58,110	3,435	5.91

The recent studies which have been carried out in the Mediterranean region of Turkey revealed that 14 % of the settlement area are covered by the tourism establishments and 31 7 % of the remaining part are urban area and secondary houses, respectively.

Relevant to the 5 Years Development Plan, tourism planning studies are carried out by the Ministry of Tourism. Tourism Master Land Use Plans (1/25 000 scale) of Aegean and Mediterranean coasts are prepared to show priority areas where infra and superstructures will take place. Approximately 1 million bed capacity including camping areas is planned under this study by 2000 and South Antalya, Side and Koyceğiz are considered as pilot projects of which implementation plans (1/1000) were completed.

3. One assumption is that 66.85 % of the total coastal area of Turkey is under intensive use, 20.35 % of it is partially under use and 12.8% of it is relatively conserved. However, this estimation should be interpreted within the Development Plans Areas without any interruption in the basic functions, geographical conditions and settlement concentration.

Coastal development is rapidly continuing as a result of the growing demand for coastal areas as residential, tourist and industrial areas. All coastal zones in Turkey except the Black sea Region are important areas from the industrial and commercial point of view.

The rapid urban expansion leads to loss of fertile agricultural land (Table 6) and causes complicated environmental problems in the cities. Inadequacy of infrastructure, public services, energy, water supply and sewerage networks, urban transport, housing and green areas are felt in ever growing dimension. The rapid growth is recorded by all sectors of the economy and has resulted in increased polluting activities

Table 6

Land use characteristics in the Mediterranean Coastal Cities (ha)

Agricultural use	Grassland-Pasture	Sanddune
4,021,650	1,027,000	21,990

Tourism, industrial and agricultural developments all compete for the same natural and environmental resources, especially coastal land conflicts have become more and more apparent. Land resources are under pressure from rapid urbanization, industrialization, tourism and infrastructure construction. As agricultural lands are being diverted to other uses, there is a decline in the availability of land for agricultural production and green areas.

One of the most important environmental problems is water erosion in Mediterranean region of Turkey. (Table 7). For the prevention of degradation arising from erosion, soil protection measures such as river amelioration and reforestation have been executed in 963.37 ha of area.

Table 7

Water Erosion Problem in the Mediterranean Region

Erosion level	Turkey		Mediterranean region		Proportion of area
	Area (ha)	%	Area (ha)	%	%
0	5,166,627	6.64	1,464,580	9	28
1 (low)	5,611,892	7.22	2,027,324	12	36
2 (medium)	15,592,750	20.04	2,064,754	12	13
3 (severe)	28,334,933	36.42	6,329,493	38	22
4 (very severe)	17,366,463	22 32	4,741,716	29	27
Total	72,072,665	92.64	16,627,967	100	23
Erosion area	66,906,038	86	15,163,387	91	23

The activities regarding the protection of environment and the state of resource uses are as follows. The construction of modern sewage treatment systems has begun in Turkey in the late 1960s, under the leadership of the Bank of Provinces. The services given on wastewater are shown in Table 8.

Table 8

Services regarding the Wastewater Collection and Treatment Systems

Cities	Population Sewerage systems completed or planned	Population Wastewater treatment system completed or planned
Adana	1,293,699	54,451
Antalya	530,124	90,958
Aydin	311,232	270,065
Balikesir	190,212	47,492
Çanakkale	70,225	60,069
Edirne	137,086	
Hatay	196,179	123,871
İçel	544,871	
İzmir	1,945,065	1,840,306
Muğla	122,014	83,817

Studies on the water quality monitoring indicate that water qualities of main rivers flowing to the Mediterranean generally are convenient with standards of 1st and 2nd Classes, except for their o-PO_4, NH_3-N, NO_2-N, BOD_5, COD, oil, Pb, Cd, B, Cr and Hg values of some stations.[5]

4. There is no general definition for the coastal area boundaries in the existing legislation in Turkey which allows to identify the percentage of coastal areas under protection. Each authority defines their activity areas in the most functional way In this framework, the protected areas and their status are as follows:

[5] Class 1: High quality of water, can be used for water supply with disinfection only and for recreational purposes
Class 2: Fairly polluted water, can be used for water supply with an appropriate treatment and for recreational purposes, fish production and irrigation

Table 9

National parks and protected areas

	National Parks and Protected Areas (excluding SPAs)	Number	Area(ha)
National Park	It is an area of great scientific and aesthetical value with recreational and tourist objectives. It comprises rare resources of national and international interest.	11	205,850
Nature Park	Area with wild fauna, flora and outstanding geomorphology. *Recreational activities are allowed.*	5	73,740
Nature Protection Areas	Area created by ecosystems, species and natural phenomena, containing outstanding examples of rare, endangered of disappearing species.	9	54,061

In the forest areas there are significant damages caused by illegal settlements, tourism activities, agricultural purposes and by fires and pests. Forestry Law defines several categories of protection applicable to forests which are under the responsibility of Ministry of Forestry. The entire Turkish forest is in alienable governmental property. (Table 10)

Table 10

Forest land area in the last decade

	Area (km^2)	%	Mediterranean (km^2)	%
Forest land	201,993	100.00	14,231	7
-Softwood forest land	85,150	42.15	6,811	7
-Hardwood forest land	197,693	53 32	7,289	6
-Mixed forest	9,150	4.53	131	1
Protected forest land	8,320	4.1	408	4
Area covered by forest quality	201,993	100.00	14,231	7
-Productive	88,565	43.8	4,577	5
-Unproductive	113,428	56.2	13,182	11
Reforestation land	13 968	6 9	4 889	35

All legal arrangements concerning the conservation of urban, natural, archeological and architectural heritage are regulated by the Law of Conservation of Culture and Natural Entities. By the Law, conservation organizations were decentralized and 15 Regional Commissions are established under the High Council for the Conservation of Cultural and Natural Entities. Local administrations are also included in the conservation process.

Within this process, 39 Conservation Plans for cultural assets have been approved. The Antalya Citadel project is a good example of implemented conservation plans. With this plan, the revival of the old harbor and the buildings surrounding it were provided. This project stimulated the restoration of the old citadel. Now, the citadel has developed into a tourism center without undermining the provisions of the regulations on the preservation of historic monuments. An interesting example of the conservation of the historical environment is the Kuşadasi Inner Citadel, where a cooperative has been established for the maintenance and renewal of dwellings. The purpose of the project is to arrange the historic center function as housing and as a tourism center and to provide for its maintenance and management.

Turkey also possesses a rich submarine heritage and diving is strictly prohibited by Law in 15 areas to protect submarine natural and cultural wealth.

The Council of Ministers is empowered to designate Specially Protected areas with a view to taking measures which would ensure that natural wealth of ecological significance, vulnerable to environmental pollution and degradation, be conserved for the benefit of future generations.

SPAs are selected in accordance to their biological and ecological value and richness in flora and fauna species and exhibiting natural biological diversity in terms of endemic plants and animal species, and historic, aesthetic, archeological, cultural or educational interest. These SPAs are under the responsibility of the Authority for the Protection of Special Areas which has been affiliated with the Ministry of Environment since 1991. Its responsibilities range widely; definition of use and conservation criteria for urban planning and for reviewing the existing plans at all levels; control of plans' compliance with protection principles when facilities are built; mapping of the areas involved; preparation of infrastructure plans while taking the necessary measures for protecting all natural ecosystems in special areas.

Turkey, to allow sea turtles lay eggs, has banned building and construction on the coasts which would otherwise generate significant tourism revenues, and has closed inlets and coastal areas of unique beauty to extensive tourism. Furthermore, to protect the Eastern Mediterranean, construction of industrial facilities which can discharge waste into the region has been prevented to a great extent.

Habitats of Monk Seals also have been under continuous protection according to Turkish legislation. Action Plan for the Management of the Mediterranean Monk Seal adopted in 1987. In this connection, a National Strategy for the protection of the Mediterranean Monk Seal has been accepted and a National Committee has been set up under the coordination of the Ministry of Environment (MOE) with the participation of relevant organizations, for the purpose of monitoring, evaluating and coordinating works related to monk seals Foça-İzmir has been selected as a "Pilot Area" due to the importance of its seal habitat and a local committee has been set up with the participation of local representatives and NGOs. With the financial support provided by MOE, a national project has been launched to identify suitable habitats for and main threats to the monk seal along the Turkish Mediterranean coast and besides that a project developed jointly by the WWF and MOE has been started to support the implementation of measures in Foça and to increase awareness of the local population A second local committee was set up in early 1993 in Yalikavak, Bodrum-Muğla, another zone possessing important seal habitats.

5. Major policy regarding the coastal areas of Turkey in the Mediterranean region is sustainable tourism development. For contributing significantly to the explosive growth of the tourism industry especially in the southwest coast in Turkey, Law of Encouragement of Tourism was promulgated in 1982. The Law allows the Ministry of Tourism (MOT) to designate and manage significant lands along the coast for tourism purposes and allocates generous financial incentives for private developers of new tourist accommodations in these zones. In the tourism zones, the MOT acts as a real estate operator where has full rights of ownership, either through transfer of Government lands via the Treasury or simply by expropriation if the land was owned by individuals. MOT can award land to tourism developers on low cost, long-term leases according to the Master Plans it prepare.

One of the main traditional practices is commercial fishing which depends on uncontaminated coastal waters and non-interference from activities such as boating, sport fishing and sea transport. Fish production by aquaculture is also becoming very common and increasing practice in the region.

6. Limitations to proprietorship and use of the coasts and shore strips of Turkey are regulated by the Constitution and the Coast Law Shores are considered in the Constitution as lands which are in the possession and at the disposal of the State and can not be appropriated privately.

The Government of Turkey passed a Coast Law, specific to governing the development of coastal zones in 1990. This was followed by a decree pertaining to the definitions, and use and planning of coastal zones. According to the legislation the shore itself is defined as the strip between the shoreline and a "shore border line", which corresponds roughly to the mean high water level. A second series of definitions concerns the "shore strip", the strip of dry land along the shore whose depth determines the construction setback margins. The Law restricts the use of shore strip and defines construction principles in favor of public benefits. The first 50 meters of the shore strip is reserved for public. No constructions can be done at this part and only publicly owned open-air facilities can be placed there (like green areas, recreational facilities, etc.). The second 50 meters of the shore strip is allowed for low density, day-trip-tourism buildings that are open to public use.

The Ministry of Public Works and Settlement (MPWS) has traditionally been at the center of the institutional framework for land use planning and urban development (including housing), as well as for construction of infrastructure facilities. Its authority was eroded with the promulgation of the Law on Municipalities, which accelerated the process of decentralization. Municipalities have full authority in matters of urban development, including the preparation of Master Plans within their boundaries. MPWS retains full authority for the implementation of provincial road and national highway programs through its General Directorate of Highways. This is very important for coastal area management issues because the opening of a new road results in opening up of the areas through which it passes to urbanization and tourism development. Through the Bank of Provinces, MPWS implements municipal infrastructure projects, primarily water and sanitation.

At Turkey's administrative system provinces are central administrative units and municipalities are local governmental units. There is no distinct status defined for coastal zones in the existing administrative system Apart from the shore strip of 100 meters defined in the Coastal Law municipalities or provinces do not describe any coastal zone.

In Turkey, regions are organized in provincial units. Provinces are administered by governors appointed by the central government and are supervised through central executorship. Administration and planning activities at areas out of municipality boundaries and special zones (tourism areas, protection zones, etc.) within the provinces are carried out by governors' offices. Some related major tasks of the governors' offices are preparation and implementation of application plans, identification of mass-housing areas, execution of environment and coast laws, coordination between local government councils and arrangement of the activities of local culture councils. Central government supports governors' offices in carrying out their tasks. Local units of ministries and institutions help the governors.

Municipalities constitute the local governments, because the mayors are assigned by elections, in the administrative structure of the Turkish Republic. Settlements with over 2000 population become administratively municipality status. Settlements that have become municipality are not necessarily "cities" in sociological sense. In the existing administrative regulations of Turkey all the settlements varying from smaller settlements with over 2000 population to bigger cities, except the ones with metropolitan status, are administered with the same municipality structure. There are 16 metropolitan cities in Turkey and 4 of them-İzmir, Antalya, Mersin, Adana, are located in Mediterranean area. Metropolitan cities are administratively organized by a distinct law called Greater-City Municipalities; but considering coastal zone regulations municipalities and greater-city municipalities have similar responsibilities. Municipalities are responsible within their settlements and at the surrounding potential development zone. They are not authorized at rural areas, agricultural land, or at areas with special status, such as forests, tourism centers, etc areas out of municipality boundaries are bound to provincial administrations, namely the governors, there are no other regulations with special laws. Municipalities, however, in finance and administration, they are responsible to the central government, so they are not fully autonomous.

There is not an existing regulation regarding the administration of coastal areas in Turkey. However, after 1980, as a result of increasing tourism demands towards the Mediterranean and Aegean Sea, there have been many arguments regarding the administration of coastal areas. Policies supporting tourism on one hand, and the negative effects of the increasing tourism and the demand for summer houses on the other hand, have brought on the agenda a law draft regarding planning, protection and supervising the implementation of coastal areas in 1995. However, this draft law has not been legalized yet.

All the Ministries and governmental bodies which have responsibility in the coastal management issues are shown in Table 11

For the strengthening of participation of nongovernmental organizations to coastal zone management issues, a National Committee has been established in 1993. The main target of the Committee is to encourage and support the studies made for the stable, long-term, productive and effective using of coastal areas, and for the protection of natural characteristics of these zone; to strengthen the communication and cooperation among the universities, public and private sector institutions and voluntary institutions.

Functional Responsibilities of the Government Departments on Different Issues

	State Planning Organization	Under secretary of Maritime Affairs	Ministry of Public Works and Settle-ment	Ministry of Health	Ministry of Forest	Ministry of Tourism	Ministry of Culture	Ministry of Transport-ation	Ministry of Industry and Commerce	Ministry of Agriculture and Rural Affairs	Ministry of Energy and Natural Resources	Ministry of Environ-ment	Bank of Provinces	General Directorate of State Hydraulic Works	The Authority of Specially Protected Areas	Governor Offices	Munici palitie
land use planning policies and practice			PRM			R			P			R	R			RM	RM
water, air and soil pollution control agencies		M		M		M						PRM				M	
water supply and wastewater collection and treatment agencies	P		C			P						PMC	PMC	PC		MgC	MgC
fisheries and aquaculture management and regulation	P							PC		PM							
special area management programs for protected areas					PRM										PRM		
economic development, promotion and control activities	PR								P							P	
tourism development, promotion and control activities	P					PRM										PC	
building and construction regulation			RMC													PRMC	PRMC
forestry, agriculture policies and practices	P				PRCMg					PRCMg							
seaports and transportation	P	PRMMg						PC									Mg
mineral resources	P										PRM						
oil and petroleum products, production, transportation and regulation								PC			PRM						
historical and cultural sites and monuments							PRMCMg									M	M
protection of biodiversity					PM							PM					
health control				PMMg												M	M
coastal erosion					M											M	M
natural hazards				PMCMg												Mmg	M

M Maintaining

P: Programming
C. Construction

R: Regulation

Mg: Management

NGO and private sector participation to the programs and projects on coastal management has been taken as a very important manner. Especially, during the preparation and implementation of pilot activities regarding Monk seals, Caretta caretta and CAMPs, active NGO participation has been provided.

7. Major policy instruments in Turkey are regulatory arrangements. On the other hand, Development Plans define land use for urban municipalities under the responsibility of Mayor. These plans are prepared by the MPWS on behalf of municipalities and take care of the following basic policies; protection and development of agricultural areas, protection and development of forest areas, protection of ecological balance, protection and development of natural and cultural values and improvement of human settlements, protection of water basins, gathering and improvement of industrial areas, encouragement of economic activities which will contribute to the local economy, development of land use plans towards the improvement of tourism.

Development Plans generally originate protection and use decisions with the zoning principle. There are 34 development plans which have been completed in the Mediterranean region, 27 of them by Ministry of Settlement and 7 of them by Authority of Specially Protected Areas.

In Turkey, the State promotes investors for site selection in organized industrial zones (OIZ) and small-medium scale industry sites (SMIS). This policy is based on the aim of modernizing technology and increasing efficiency in the industrial sector. These sites helps to manage the industrial development in an integrated way and, to control and monitor the industrial activities effectively from the environmental point of view as well. There are 6 OIZs and 46 SMISs in the Mediterranean coastal cities and 7 OIZs and 24 SMIZs are under construction.

For the zones under the authority of Ministry of Culture (MOC), the MOC draws up and executes protective Master Plans which supersede previously-existing implementation plans. As far as the financial aspects of conservation in cultural assets are concerned, two kinds of compensation offered to private owners by the government; Listed monuments of first and second categories are exempted from taxes, and government provides a fund contributing to the restoration of listed private buildings.

Subsidies and loans and incentives to tourism, industrial, construction activities are depended on the appropriateness of these activities to the Development Plans.

Main economic instrument used in the environmental point of view in addition to taxes related to revenue, property taxes and indirect taxation is solid waste and wastewater tax. It was created by a recent amendment in Municipal Income Law in 1993, and known as "Cleansing Tax". It is expected to increase municipal revenues.

8. As for the incorporation of the environmental policies with the economic policies of the government, environmental considerations have been compromised in the five-year development plans, which are binding for the public sector and indicative for the private sector. Seventh Five Year Development Plan which covers 1996-2000 period emphasizes the participation of beneficiaries and users to the infrastructure investments which will be 4 in

accordance to the user pays-polluter pays principle. It also asks the revision of Coastal Law in a way which will take topography and natural resources into consideration.

The Environmental Impact assessment (EIA) Regulation was put into force in 1993. It consists of five annexes. Annex I is the list of Activities which are subject to EIA and for which preparation of EIS is obligatory. The List covers all the activities of Appendix I of EIA Directive of ECE and also projects which may have considerable adverse impacts on environment in view of existing environmental conditions.

Annex II is the List of "Sensitive areas" which should be protected according to the national legislation and international conventions of which Turkey is a party. Activities which are planned in these areas are subject to EIS.

Annex III is the List of activities which are subject to Preliminary Environmental Evaluation (IEE). It is accepted that activities in Annex III may cause less significant adverse impacts on environment comparatively to the activities listed in Annex I. For the activities included in Annex III, IEE Check-List and Evaluation Matrix is prepared to decide on whether the preparation of EIS is necessary or not.

Annex IV is the Check-List and Evaluation Matrix and Annex V is the EIS General format. EISs are reviewed by the Review and Evaluation Commission which consists of the representatives of all relevant central and local authorities, the owner of the activity, representative of the agency preparing EIS and the representatives of the Ministry of Environment (MOE). Real persons and legal entities, universities, research centers and specialized institutions and professional chambers might be invited as Commission members when it is seen necessary by the MOE.

One of the main points underlined in EIA regulation is public participation. The meetings allowing public to get an information about the investment are held in accordance to the EIA Regulation. The opinions, recommendations of public are taken into consideration in the evaluation period by the Commission. On the other hand, EISs are open to those who want to review during the evaluation period.

EIA regulation also establishes a basis for the monitoring and auditing of the activities in operation and post-operation phases. Following the entry into force of the EIA Regulation, there has been a considerable increase in the environmental awareness both in public and private sectors. In the Aegean and Mediterranean regions of Turkey, approximately 60 EIA studies have been carried out in mining, industrial, tourism, infrastructure and energy production activities.

9. In the existing legal system, there are many local and central institutions which could be considered authorized within the scope of coastal zone management concept. Considering the planning system in Turkey in general, the conflicts arise due to the pluralism and inadequate coordination instead of an organized structure as a result of the fact that the authority of different institutions are defined independent from each other. In the present system, local administrations, ministries and deputy institutions of central organization are authorized in different fields to prepare projects, plans and to control them. There is no upper institution controlling and ensuring a coordination in the assigning of these duties. As a result

of this disarrangement in assigning duties, coastal areas have been rapidly turning to mass-housing areas and thus the natural values are threatened.

Main problems in the implementation are extensive migration from rural areas to urban ones and squatter settlements. While main migration areas has been Ankara, İstanbul and İzmir, there is a tendency to Antalya and Mersin in the South Mediterranean region. Along with the illegal housing, secondary housing due to the high tourism development is another main problem in the region. This trend threatens agricultural and forest areas and arises infrastructure shortages which designed generally to serve winter population rather than summer. The pressure on the coastal areas arising from the mentioned reasons makes difficulty for controlling the unplanned development with limited personnel and equipment capacity.

Extensive tourism growth in the region generated a seasonal demand on infrastructure and services that equals or exceeds that of the permanent population. Other impacts, on natural landscapes and government services, have accompanied this growth, to the detriment of both scenery and services. Main monitoring mechanism is established with the EIA Regulation for the activities included in the legislation. On the other hand, each authority monitors and controls the activities which are under their responsibility.

10. There are special programs to increase public awareness such as seminars and meetings which are supported by governmental bodies. Regional Governors and NGOs have been invited to the meetings organized by MOE for the exchange of views and explanation of activities n 1995. On the other hand, most of the governmental activities regarding coastal management such as Development Plans, EISs in line with the legislation are kept open to public for certain period of time to provide information about the studies and to get the opinions of public. In addition, all projects and programs have been presented and explained to the local authorities and public by the meetings.

11. Special attention is paid to environmental protection, with particular importance given to infrastructure projects "Southeast Coast Environmental Project-ATAK", "Blue Flag", "Tourism Training" and "Tourism Master plan" are a few of these projects.

The development of tourist accommodations and second homes along the southwest coast contributes significantly to the overload on water, sewerage, solid waste, and other services. For the prevention of the environmental pollution arising intensive tourism activities, Ministry of Tourism is also carrying out a large-scale infrastructure project, -namely ***Mediterranean-Aegean Tourism Infrastructure and Coastal Zone Management Project (ATAK)-*** to overcome the deficiencies in environmental services for municipalities and developed areas in the Southwest to meet the needs of tourism establishments and local inhabitants in the 2000s Project covering 4000 km along the Mediterranean and Aegean shores from the Çanakkale-Balikesir province border to Antalya-İçel province border. There is approximately 100 settlements inside the defined area These settlements are not considered in their municipality boundaries and 25 "service zones" which include these settlements are defined according to economic, topographic and geographic characteristics. Among these basins, 10 are given priority depending on the intensity of tourism activities, necessity of infrastructure investments and cost of investment per capita. 10 basın projects-namely for Edremit, Çeşme, Kuşadası, Bodrum, Marmarıs, Koyceğiz, Fethiye, Kemer, Side

and Alanya will cost approximately US$ 350 million and the rest of 25 specified basins will cost approximately US$ 616 million according to the feasibility reports which were prepared in 1992. In order to study the institutional and financial status of project municipalities in a more comprehensive way, Municipal Diagnosis Study is prepared by International Union of Local Authorities, Section for East Mediterranean and Middle east Region based in istanbul. The main objective of this study is to measure the credibility and assess the affordability of municipalities for the realization of infrastructure services.

Turkey is a participant in the International ***Blue Flag*** Campaign organized by European Environmental Training Foundation. The project aims to achieve adequate levels of water and service quality as well as general environmental standards along the beaches as well as in the marinas. To this end, the Ministry of Tourism contributed to the establishment of the Turkish Environmental Education Foundation which has started monitoring the Turkish coast in 1993. In 1995, the marinas and beaches shown in Table 12 were awarded with Blue Flag in the Mediterranean and Aegean Coasts of Turkey.

Table 12

Marinas and Beaches awarded with Blue Flag

Marinas	Beaches
Altinyunus (İzmir) Turban Kuşadasi (Aydin) Bodrum (Muğla) Marmaris (Muğla) Kemer (Antalya) Albatros (Antalya) Setur (Antalya)	Titreyengol (Antalya) Lara (Antalya) Göynük Kemer (Antalya) Kemer (Antalya) Tekirova (Antalya)

To further encourage and reward environmentally conscious facilities, an "***anchor***" logo is awarded to successful marinas, a "***dolphin***" for yachts, and a "***pine tree***" to accommodation facilities. These voluntary exercises initiated by the Ministry of Tourism with the aim of increasing public awareness and efficiency of the tourism industry in an environmentally sound manner have attracted considerable attention.

Turkish shores are under the threat of pollutants discharged from marine vessels and aircraft, garbage and other materials' disposal. In some cases, such substances coming from other countries, are washed up on the Turkish Coasts. The situation jeopardizes public health as well as tourism. Efficient control of the shores from the air and sea can greatly averts the danger. A pilot project financed by the Ministry of Tourism carried out in 1993 and successful results were taken. In this study, aircraft were utilized to make regular flights over the Turkish shores to ***report polluting incidents*** to the Coast Guard which in turn takes the necessary measures.

Turkey, which has actively participated in every stage of the activities conducted to prepare the Blue Plan Mediterranean Scenarios, carried out the ***"İskenderun Bay Environmental Management Project"***, a continuation and local-scale implementation of the

scenarios. The fundamental philosophy of the İskenderun Project which was completed in 1992 was to develop proposals concerning legal, institutional and financial arrangements for the purpose of preparing local-scale environment/development scenarios by localizing the methods used in the Blue Plan Scenarios and of setting up a national environmental management structure for the region of the İskenderun Bay on the basis of results to be obtained from these scenarios.

The objective of the project was to identify the elements for the assessment and reorientation of the future programs in the light of developments and trends, and;

- to explore the possibility of developing new sectors in the region,
- to assess development trends in all sectors interacting with the environment,
- to highlight the interaction between the environment and development,

so as to prevent and abate the burden on the environment and adverse developments in the region.

Although it covered basically the İskenderun Bay and coastal areas, whole basin was covered during the planning phase, seeking to achieve economic, social and ecological integrity. The project area was determined on the basis of the degree of socio-economic and ecological interaction and the trends, regardless of administrative and geographical boundaries.

On the basis of the picture revealed by different scenarios, a "special" environmental management model has been proposed for the project area. Considering the fact that environmental protection has acquired a legal and administrative framework, and taking the current Turkish legislation into account, it was decided that a joint-stock company with corporate personality would be an appropriate body for management. This company would provide public services for public benefit. The shareholders of this company, in terms of main groups, are;

- the concerned ministries and their attached agencies,
- local governments and their unions; and
- local social actors.

Having specified in the project the legal, administrative and financial structure of the said organization, the activities that it would perform are listed as follows;

- priority/urgent actions,
- actions that will yield tangible results in the medium term; and
- actions with long term impacts.

The activities undertaken within the framework of İskenderun project were opened for discussion at each stage in meetings attended by the representatives of concerned official central government agencies, local authorities, scientific organizations and NGOs.

İzmir where the most important sectors of economic development such as agriculture, industry, transport and domestic and international trade are in a rapid development stage, is faced with a major demographic change due to the impacts of these sectors. Despite the richness in natural resources and cultural assets, the growing demographic and economic problems have had a large-scale impacts on the İzmir Bay, rendering one of the most polluted

zones in Turkey. The major sources of pollution in the Bay are domestic and industrial wastewater, heavy maritime traffic, soil erosion, and farming activities. All the indicators have revealed the İzmir Bay to be a pilot area for integrated planning. In this context, a ***Coastal Area Management Program for the Bay of İzmir***, comprising of scientific studies and assessments with a view to provide necessary support to engineering practices for environmental control was launched under the agreement signed between Turkish Ministry of Environment and UNEP-MAP in 1990.

Under this program, Pollution Monitoring Program in the İzmir Bay was carried out by an assessment of land-based pollution. The study has still being carried out expanding the frame to the determination of point sources and their contribution to the pollution, and identifying measures for the prevention of pollution.

GIS training, included in the program for the purpose of training local planners and decision-makers on resource management and on the transfer of physical, environmental and socio-economic data to the information base was carried out, and the GIS System has been established within the Metropolitan Municipality of İzmir. The "Integrated Planning" work which was considered to be a base for the preparation of Master Plan for the city of İzmir was completed. The EIA work for the planned Wastewater Treatment Plant" was prepared by the PAP experts.

The most striking bottlenecks encountered during the implementation of the İzmir CAMP and were quite important indicators for the implementation of CAMP are;

- Administrative and institutional problems caused by lack of coordination between local, regional and central administration levels,
- Incompatible decisions taken by the central government ex-officio with the local decisions,
- Deficiencies in the technical capacity of the local authority to implement integrated management approach successfully.

Mersin, town of İçel province, is under the high pressure of industrialization, transportation and tourism as well as secondary houses demand which threatens agricultural areas and environmental resources. In this connection, a ***project on Mersin coastal area for integrated planning***, using the experiences gained from İzmir and İskenderun projects was initiated in 1995 and expected to be finalized at the end of 1996 The aim of the project is achievement of sustainable development in the Mersin bay area and determination of policies, programs, strategies and techniques for the improvement of environmental quality. İçel province area is defined as the project area.

Activities which will be carried out under the project includes; determination of state of environment, determination of zone in line with the environmental problems and natural resources management, assessment of existing administrative structure in line with the coastal environmental management approach, assessment of economic, regulatory instruments and public participation in the frame of existing legislation, determination of trends which help assessment of the development impacts on the environment, determination of policies and strategies for the conservation and improvement of environment, determination of implementation policies and strategies for the coastal environment management plans.

In 1991-1992 period, a study called ***Coastal Zone Management in Turkey***, under the METAP was carried out to review and analyze the causes of environmental degradation in the Mediterranean region of Turkey and to elaborate the ways and means to achieve sustainable development. The study examined policy, legal, administrative, institutional and fiscal aspects of the protection and management of the coastal zone at national, regional and municipal levels, planning procedures, economic and financial instruments and enhancement of public awareness and participation. The study also identified unsustainable Government interventions such as incentives for secondary housing and over investment in the bed capacity without accompanying infrastructure and services. As a follow-up of the study, the Government of Turkey shifted the subsidies given to the tourism sector towards environmental control measures. Municipal financing mechanisms were reviewed and users fee (cleansing tax) was issued which is to be collected by the municipalities for the provision of wastewater and solid waste services. On the other hand, municipalities unions have been encouraged for better fulfillment of their environmental tasks. The unions approach facilitates especially activities of small municipalities and clusters in constructing and operating treatment facilities as well as collecting and disposing solid waste. In addition, several activities have emerged as a result of the study. One of these is "Patara Natural and Cultural Heritage Project" which was initiated for integrated environmental management taking into account the area's unique natural environment constituting a habitat for a variety of species, and a nesting ground for the Caretta caretta as well as its cultural and historical value.

The study on the preparation of an "***Environmental Strategy and Action Plan***" has been initiated in cooperation with the World Bank. The main objective of this task is to ensure sustainable growth, and to include environmental concerns into the development policies of Turkey, and to provide appropriate actions.

NEAP Study is carried out under the authority of State Planning Organization and with the technical guidance of Ministry of Environment. For the preparation of NEAP 12 subcommittees, including Land Use Planning and Coastal Zone Management, which are formed with the participation of representatives from all relevant governmental organizations, scientific institutions and NGOs are established

NEAP will establish priorities among several areas of environmental concern, determine an action plan that can be integrated into the country's development program, and identify environmental investment priorities. The geographic coverage of the study will be nationwide, regional and local and will address issues related to all administrative levels.