PROGRAMME FOR THE INTEGRATED MANAGEMENT OF THE MAR MENOR COASTLINE AND ITS AREA OF INFLUENCE

CAMP MAR MENOR

Spain

Feasibility Study

September 2003

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Consejería de Agricultura, Agua y Medio Ambiente
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PRIORITY ACTIONS PROGRAMME

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PROGRAMME FOR THE INTEGRATED MANAGEMENT

OF THE MAR MENOR COASTLINE

AND ITS AREA OF INFLUENCE

(CAMP MAR MENOR)

Feasibility Study

Report prepared for MAP-PAP/RAC by

Prof. Humberto Da Cruz

in co-operation with

tThe Regional Ministry of Agriculture, Water and Environment of Murcia

Regional Working Team

DIRECTOR
Francisca Baraza Martínez

TEAM
Marcelo Martínez Palao
Juana Guirao Sánchez
Ana María Rodríguez Díaz - Regañón
Irene Pérez Ibarra
Laura de Entrambasaguas Monsell
Francisca Giménez Casalduero
Pedro Cartagena Rocamora
Antonio López Hernández

Digital model
Mariano Vicente Albaladejo
Jose Luis Linares
Pedro Pérez Cutillas

September 2003

SUMMARY

PREFACE

This feasibility study has been commissioned by the PAP/RAC of UNEP-MAP, following the decision of the Bureau of the Contracting Parties to the Barcelona Convention at their meeting in Monaco (17-18 October 2002).

The study should achieve the following objectives:

- inspect the existing strategic, policy and institutional context encompassing the area where the CAMP activities could be carried out;
- define the area for CAMP;
- collect and present the available relevant information on the strategic, policy and institutional context at the national level and at the level of the study area;
- define the possible activities from the point of view of the national and local interests;
- assess the international context where CAMP Mar Menor could be implemented;
- assess the possibilities for the implementation of the CAMP; and
- assess the possibilities for a long-term sustainability of the project.

METHODOLOGY

Following MAP CAMP procedure the feasibility study is a first step that will help to decide about the area of the CAMP, the activities to be carried out and the needs to achieve the defined objectives.

The Feasibility Study is a crucial step for a CAMP –and not only a formal prerequisite- because it will help to avoid mistakes in the design of the project. In the present case we have tried particularly to avoid some of the problems found in past ICAM practices.

In this context, and taking into account the most recent recommendations from MAP and other specialized institutions, we have put a special emphasis in the following aspects of the Feasibility Study for CAMP Mar Menor:

- Consideration of the legal context and the institutional capacity at national and regional level that may facilitate the achievement of the goals of the future CAMP.
- Inventorise all the available information related to the project.
- Facilitate a process of co-ordination since the starting steps with other planning processes in order to avoid contradictions and the misuse of resources.
- Establishment of a participatory process since the first steps of the project, including local, national and regional authorities as well as the civil and scientific sectors.
- Definition of appropriate technical and social tools.
- Clear definition of goals in the framework of a global and long-term perspective setting of priorities.
- Necessary elements to assure the implementation and sustainability of the CAMP.

Under those premises, we have organized the study in four main parts:

- Institutional and Political context, including Strategies and Policies at International, National and Local level that are relevant for the CAMP, as well as the Legal and Institutional Structures influencing the CAMP area.
- Proposal of the CAMP area, including a description of the geographical, ecological and socioeconomic context, as well as identification of the main problems and actors.
- Definition of goals and setting of priorities for the CAMP Mar Menor.

- Justification of the CAMP. Main arguments in favour of the CAMP Mar Menor and proposal of financial, organizational and technical needs.

An Executive Summary, Selected Bibliography and several annexes (including cartography) will complete the report.

For the preparation of the local contributions to the report a team of experts has been organized and several institutions have been consulted, including regional and national administrations, NGOs and socioeconomic and scientific organisations.

After the approval of the feasibility study (in this case by the Meeting of the Contracting Parties to be held in Catania – Italy (November 2003), a Project Agreement will be signed between MAP and the Spanish authorities that will formally initiate the CAMP.

SUMMARY

INTRODUCTION

The meeting of the Bureau of the Mediterranean Action Plan held in Monaco (17-18 October, 2002), agreed to start the preparation of a Feasibility Study for a Coastal Area Management Programme (CAMP) in the Mar Menor area, as it was proposed to MAP by the regional ministry of Murcia for Agriculture, Water and Environment, through the Ministry of Environment of the Spanish Government.

In January 2003, there was an agreement between the Regional Ministry of Agriculture, Water and Environment of Murcia and the Priority Actions Programme Regional Activities Centre of MAP (PAP-RAC), approving the terms of reference for the elaboration of the Feasibility Study. The Study was prepared during the period May-September 2003.

GENERAL INSTITUTIONAL AND POLITICAL CONTEXT

The first chapter of the Study, General Institutional and Political Context, outlines a survey of the available information on Integrated Coastal Area Management (ICAM) at international level - fundamentally in the European Union – as well as at national and regional level. From the results of the survey it is possible to conclude that the evolution of the political will during the last few years is clearly in favour of the adoption of ICAM, although its transfer to practical execution is still clearly insufficient.

An analysis of the existing strategies concerning ICAM - in the EU, and at the national and local levels – has been done as well, focusing specially in those policies that have a key importance in connection with the proposed CAMP: sustainable development, environment and conservation of the nature, agriculture, fisheries, tourism, transport, energy and water.

As a third element of this chapter an analysis of the existing institutional framework is done, highlighting those public bodies that can be outstanding for the development of the project. In this context the General Direction of Coasts (Ministry of Environment) and the Regional Ministry for Agriculture, Water and Environment of the Government of Murcia, together with the municipalities of the area, are identified as the most relevant institutional bodies to implement the project, as well as the preliminary proposals that the different participants, involved in the participation process set in motion for the feasibility study, have put forward on an action - framework and action level which ought to be envisaged in the CAMP. Finally, the project's global framework and nature are established on the basis of the GICZ principles, as adopted by the PAC-RAC, and the unique features of the project's area.

As a last point in this chapter, a review of the existing legal framework is presented.

PROPOSAL OF THE MAR MENOR AS A CAMP AREA

The second chapter, Proposal of the Mar Menor as a CAMP area, besides characterizing the area at geographical, environmental and socioeconomic level, focuses the analysis in the main environmental or socioeconomic problems with incidence in the region, establishing the existent interrelations, the tendencies of the socioeconomic development and its environmental impact and identifying the relevant social agents and the existing opportunities for their integration in the project.

Regarding the geographical characterization, the proposed area has an extension of, approximately, 1.507 km^2, corresponding 1.250 km^2 to the terrestrial area (representing 56% of the regional coastal area and 11% of the region). Nearly 122 km^2 of marine waters are included, and 135 km^2 are covered by the lagoon.

The area occupies a wide quaternary plain with triangular form, located to the southeast of the Region of Murcia and integrates the whole basin of the Campo de Cartagena.

This area includes, totally or partially, the municipalities of San Pedro del Pinatar, San Javier, Los Alcazares, Cartagena, Murcia, Torre Pacheco, Fuente Álamo y La Union.

The Mar Menor constitutes the biggest coastal hipersaline lagoon in the Western Mediterranean and the most relevant wetland in the Region of Murcia. With a low coastal morphology and a maximum depth of 7 m, Mar Menor is separated from the Mediterranean Sea by a sandy strip 22 km long.

Geographical area of the CAMP Mar Menor.

Some of the possible consequences for the conservation of the environment in the area of the current development tendencies, if the necessary measures are not adopted to reach a more environmental friendly path would be the following ones:

TENDENCY	POSSIBLE CONSEQUENCES FOR THE ENVIRONMENT
Urban expansion	- Environmental polution - Alteration of the hidrographic basin. Changes in land use. Increase of natural risks and loss of communities and cultural heritage.
New infrastructures	- Modification of coast dynamics. Occupation and fragmentation of the territory. - Increase of accessibility of the area, traffic and recreational activities. - Environmental pollution
Increase of industrial agriculture	- Overexplotation of aquifer and salinization of soils. - Alteration of soils, eutrophication of the lagoon, impact on terrestrial natural communities. - Abandonment of traditional uses causing the loss of cultural values and altering the biological diversity.
Consolidation of aquiculture	- Loss and alteration of habitats and communities.
Elimination of traditional uses	- Loss and alteration of habitats and communities. - Loss and alteration of cultural values.

Therefore, the threat of losing biological and cultural diversity is a fact if the present trend of the main economic sectors continues. An inadequate and not coordinated planning of the activities could cause as well negative impacts on the different economic sectors, due to incompatibilities and the possibilities of exceeding the carrying capacity of the area.

Institutions and socioeconomic actors will play a fundamental role in the project. The most relevant participants in the process have been identified and evaluated and the participatory process has started during the feasibility study itself. As a result the proposals done by the different sectors have been incorporated to the proposed activities.

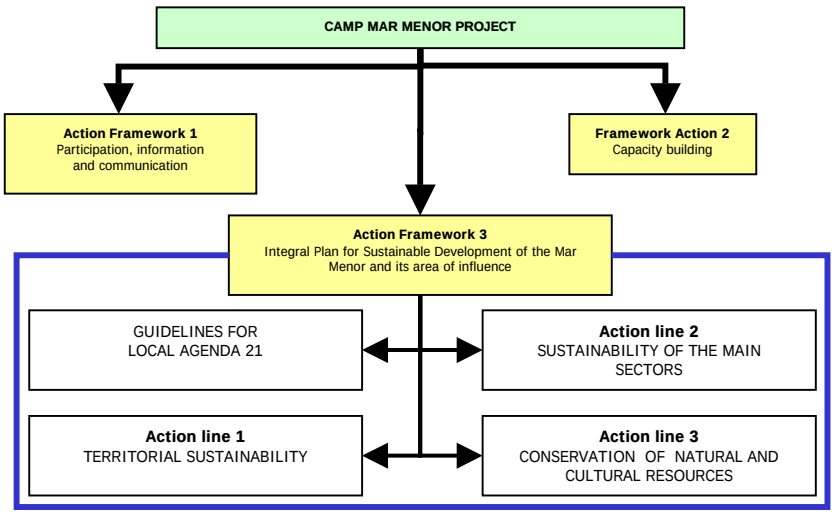
PROPOSED ACTIVITIES FOR THE MAR MENOR CAMP

The third chapter, activities for the CAMP Mar Menor, establishes a final proposal after incorporating the new contributions to the initial draft,

As a consequence, three actions have been established: a) participation, information and communication; b) capacity building; and c) Integral Plan for the Sustainable Development of Mar Menor.

Each of these action frameworks includes different action lines related with the economic sectors and to the conservation of the natural and cultural resources.

Action framework and action lines for the CAMP Mar Menor.



As a conclusion of this chapter a Chart of Integration of Indicators is established for the area of the CAMP, following the DPSIR approach (Driving forces-Pressure-State-Impact-Response).

JUSTIFICATION OF THE CAMP MAR MENOR

The fourth chapter, Justification of the CAMP Mar Menor, establishes a) the compatibility of the proposal with the principles and guidelines settled down by the PAP-RAC; b) the proposal for MAP contributions to the CAMP; c) the evaluation of the institutional capacity of local and national experts for the implementation of the project; d) the need of awareness, education and capacity building programmes; e) the financial needs and their potential sources; f) the chronogram of activities, the organizational structure and the project implementation unit for the proposed CAMP.

The main elements of justification of the CAMP are connected with: a) the strong and growing pressure that this coastal area suffers as a consequence of the human activities; b) the need to protect the very relevant values related with the biodiversity of the area; and c) the need of overcoming an excessively sectorial vision of the existing problems.

The existence in the case of the Mar Menor of many of the typical problems of the Mediterranean coasts (urbanization, tourism, fisheries, intensive agriculture, water overexploitation, pollution,),

together with the will of the local authorities to adopt a more sustainable and integrated strategy, creates particularly good conditions to make this CAMP an exemplary case for the rest of the country and for other Mediterranean countries with similar situations.

On the other hand, given the clear support of the Murcian and Spanish authorities, it is sure that the present CAMP will have a real implementation allowing it to overcome one of the main problems of many of the previous CAMPs: the lack of implementation. This will allow to open a demonstrative process of great interest for other areas of Spain and in the Mediterranean in general.

Taking into account this perspective it is possible to conclude that:

1. The objectives proposed for the "CAMP Mar Menor", are fully compatible with the MAP objectives for the CAMPs:

- To contribute to reach a sustainable development for the area.
- To evaluate the current situation, the tendencies and the interactions between development and environment; proposing instruments (approaches, guidelines, performances, etc.) that can contribute to solve the main detected problems.
- To reinforce the sustainability and compatibility with the conservation of nature of the main economic sectors of the area.
- To contribute to the conservation and sustainable management of the natural and cultural resources.
- To reinforce the coordination mechanisms among the different Administrations and the socioeconomic agents of the area.
- To increase the awareness and public participation in the conservation and sustainable use of the resources activities.

2. The relevance of the selected area is clear, especially due to the following aspects:

- Urbanization and the tourism pressure
- Agricultural pressure
- Pollution problems
- Natural areas of high ecological value and of high fragility.
- Declaration in the area of the Specially Protected Area of Mediterranean Importance (SPAMI) Mar Menor.

3. The project is relevant beyond local and national interest.

It is relevant to point out that this Project of CAMP is pioneer in Spain and in the EU, and therefore it can be a reference for the implementation of the principles of the "Recommendation on Integrated Management of coastal areas in Europe."

On the other hand, the CAMP can contribute to give a more sustainable character to the "Strategic Plan of Development of the Region of Murcia 2000-2006".

4. There is a high institutional implication in the Project.

A political will of implementation of the Project exists, as it was expressed at local, regional and national level during the feasibility study period.

<u>POTENTIAL CONTRIBUTION OF MAP</u>

Besides the main contribution of the PAP/RAC in the follow-up of the CAMP implementation, MAP could contribute with the support of other RACs in the following aspects:

- BP-RAC

  Establishment of a system of sustainability indicators for the area.

  Contribution to the establishment of the methodological framework for monitoring.

- SPA-RAC

  Follow-up of the SPAMI Mar Menor

  Support for the follow-up of action plans for species and selected communities in the area.

- CP-RAC

  Support to establish plans of clean production in the framework of the Integral Plan for Sustainable Development.

  Support to capacity building courses for clean production.

- ERS-RAC

  Support to the establishment of a GIS and of follow-up systems for the area.

- MEDPOL

  Support to the establishment of a monitoring system of coastal and marine pollutants and the establishment of an action plan to minimize their presence and impact.

EVALUATION OF THE INSTITUTIONAL CAPACITY AND OF THE CAPACITY OF THE LOCAL AND NATIONAL EXPERTS FOR THE IMPLEMENTATION OF THE PROJECT

A legal and administrative capacity exists, at national and regional level that allows the implementation of the proposed CAMP.

The General Direction of Coasts of the Ministry of Environment, and the Regional Ministry for Agriculture, Water and Environment of the Government from Murcia, will assure the main needs, supported by the advice of MAP and of some individual experts.

As for the capacity of national and local experts for the implementation of the project, it is clear that there are enough experts in different areas with relevant experience to execute the Project. In any case it will be necessary the external support already mentioned of the diverse RACs and of a co-coordinator of the project designated by the PAP-RAC.

ENVIRONMENTAL AWARENESS RAISING, EDUCATION, TRAINING AND CAPACITY BUILDING.

In spite of the efforts carried out by the local authorities and the associative movement, the awareness of the public on environmental and sustainable development matters is still insufficient in the area.

On the other hand, it is necessary to support the training of personel, in the public and private sectors, to be able to start sustainable development activities.

For those reasons two of the main action streams of the proposal are in fact dealing with the mentioned topics:

Action Framework 1 - Participation, information and communication.

Action Framework 2 - Capacity Building.

PROPOSED BUDGET

Participation, information and communication	**23.200 €**
Materials for the technical office	6.960
Web page	6.960
Publications	9.280
Capacity building	**201.840 €**
Study of capacity building needs for the different sectors	83.520
Establishment of the capacity building modules	62.640
Awareness programme for the implementation of the CAMP	55.680
Integral Plan for Sustainable Development	**431.520 €**
Collection of information	10.440
Inventory and collection of data	146.160
Database	24.360
Cartography-SIG	55.680
Analysis and diagnostic	69.600
Financial study	41.760
Elaboration of guidelines and programs for sectorial action	41.760
Action Plan	12.528
Edition and publication of the Action Plan	8.352
Support to information and public participation	20.880
Personal and Travel	**372.960 €**
Coordination Action Frameworks (3)	156.600
Information Office (2)	111.360
External Coordination consultant	60.000
External consultants	30.000
Travel and per diem	15.000
TOTAL	**1.029.520 €**

Proposal for the financing of the necessary funds

The foreseen 1.029.520 € could be obtained in the frame of FEDER and, more concretely, inside the axis 3 (environment, natural environment and water resources) of the "Complement of Programming of the Integrated Operative Program 2000-2006."

Inside the mentioned axis the Measure 5 (environmental Performances in the Coast) allows the proposed financing.

Complementarily, MAP could contribute with the payment of travel and *per diem* of experts selected by the RAC and the nomination of the co-coordinator.

After the approval of the Feasibility Study by the Contracting Parties of the Barcelona Convention, an Agreement signed by the Regional Ministry of Agriculture, Water and Environment of the Government of the Region of Murcia, the General Direction of Coast of the MIMAM and the PAP/RAC, should be established in order to formalize the financing proposal and to start the process.

ORGANIZATION OF WORK

The implementation of the CAMP Mar Menor will be carried out by the following organizational structure:

Direction. The Director of the Project will be designated following an agreement among the General Administration of Spain (MIMAM) and the Administration of the Region of Murcia. The designated director will assume the political responsibility of the project.

Advisory Council or Participatory Entity. The Advisory Council of the Mar Menor, linked to the Regional Ministry of Agriculture, Water and Environment, will have a consultative status and will act as coordination body for participation. It will be composed by three commissions (Administrative, Scientific-technical and Social). A permanent coordination team will be formed with representatives of each Commission. The Council will be chaired by the Director of the Project.

Coordination. Two co-coordinators will be appointed for the permanent follow-up of the activities. One of the coordinators will be designated by the Regional Ministry of Agriculture, Water and Environment of the Region of Murcia, and will be responsible for the coordination of the local working team. The other one will be proposed by PAP/RAC following an agreement with the Regional Ministry of Agriculture, Water and Environment of the Region of Murcia, and will be responsible for the coordination between the authorities and the local working team with the MAP, as well as the coordination of the external contributions and the supervision and co-elaboration of the reports. Both coordinators will be equally members of the Advisory Council.

Working Teams. An Interdisciplinary team will be constituted for each one of the three main action streams. The external experts will be designated by the different RACs and the coordinators. intervention.

TIMETABLE FOR ACTIVITIES

	TRIMESTERS									
ACTIVITY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Technical support. Participation	X	X	X	X	X	X	X	X	X	X
web page		X	X	X	X	X	X	X	X	X
Information materials			X	X					X	X
Study of capacity building needs		X	X	X	X					
Design of capacity building modules				X	X	X	X			
Seminars				X					X	
Summary of information for the Plan	X	X	X	X						
Database			X	X						
GIS			X	X	X	X	X	X		
Analysis and diagnostic			X	X	X					
Financial study				X	X	X	X			
Guidelines						X	X	X		
Final Plan								X	X	X

UNIT FOR THE IMPLEMENTATION OF THE PROJECT AND INSTITUTIONAL AGREEMENTS

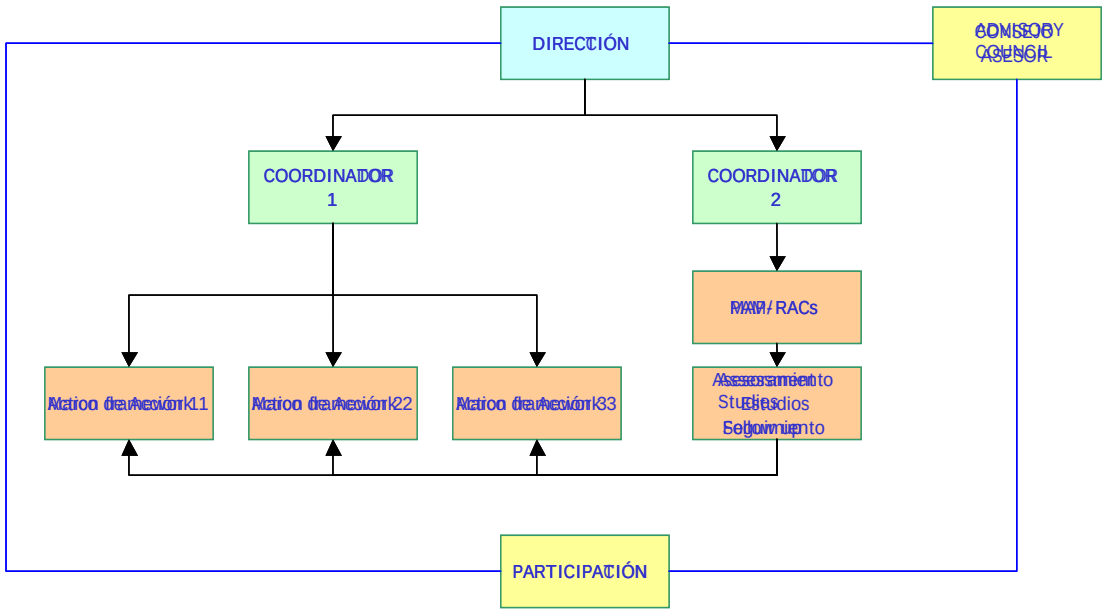
In order to achieve an appropriate execution of the project, a Specific Technical Unit will be established for its administration.

This Technical Unit will be established in the area of the project will be coordinated by the two co-coordinators of the project. Two professionals hired specifically for the project will assure its operation.

In order to avoid dysfunctions or overlapping, an agreement document will be signed for the administration of the project among all the national, regional and local participant bodies.

Also, following MAP practices, an Agreement will be signed by MAP, the Government from Murcia and the MIMAM, in order of formulating the Terms of Reference of the Project

Organizational framework of the project



BIBLIOGRAPHY, CARTOGRAPHY AND ANNEXES

The fifth chapter, Bibliographical References of the feasibility study, will indicate the main bibliographical sources and documents used for the preparation of the study.

The sixth chapter, Cartography, adds the necessary basic cartography for the understanding of the area of the project.

Finally, as a contribution for a better understanding of the basic text several documents are annexed.

CAMP MAR MENOR

Feasibility Study

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LIST OF ACRONYMS

€	Euro
B.C.	Before Christ
ACCOBAMS	Agreement for the Conservation of Cetacea in the Black Sea, the Mediterranean and the adjoining Atlantic area
ADEA-ASAJA	Association of Agricultural and Cattle - Raising Companies
ADENA-WWF	Nature Defence Association - World Wildlife Fund
AEMA	European Environmental Agency
AEMA-RM	Association of Environmental Companies - Region of Murcia
AITERM	Association of Telecommunications Engineers - Region of Murcia
ANSE	South - Eastern Association of Naturalists
ARGEM	Energy Management Agency of the Region of Murcia
ASETUM	Murcia Association of Tuna - Fishing Entrepreneurs
BCN	National Digital Cartographic Base
BOE	State's Official Gazette
BORM	Official Gazette of the Region of Murcia
CAERM	Ecological Farming Council of the Region of Murcia
CAMP	Coastal Area Management Programme
CBD	Agreement on Biological Diversity
CCOO	Workers' Commissions (Spanish Trade Unions)
CEBAS	Segura River Pedology and Applied Biology Centre
CEDEX	Public Works Study and Experimentation Centre
CEE	European Economic Community
CEMACAM	Environmental Education Centre
CEOTMA	Centre of Studies on Territorial Regulation and the Environment
CES	Economic and Social Council of the Region of Murcia
CHS	Segura River Hydrographical Confederation
CITES	Washington Agreement on the commerce of threatened fauna and flora species
COAG-IR	Farmers and Cattle - Raisers Coordinating Committee – Rural Initiative
COEC	Cartagena Confederation of Business Organizations
COGERSOL	Consortium for the Management of Solid Waste
COM	Communication
DG	Directorate General
DPSIR	Driving forces - Pressure - State – Impact - Response
e.g.	By way of example
EDAR	Sewage Works
EIONET	European Environment Information and Monitoring Network
ESAMUR	Murcia Region Cleaning-Up Body
EUROSTAT	UE Statistics Office
FECOAM	Murcia Confederation of Farming Cooperatives
FEOGA	European Fund of Agricultural Guidance and Guarantee
ICAM	Integrated Coastal Area Management
Ha	Hectares
Hab.	Inhabitants
HOSTECAR	Cartagena Professional Association of Catering Entrepreneurs
HOSTETUR	Professional Associations of Hotels and Tourist Lodgings Entrepreneurs of La Manga and the Mar Menor
IBA	Important Birds Area
ICARM	Integrated Coastal Area and River Basin Management
idea	Institute for Energy - Supply Diversification and Energy Saving
IEO	Spanish Institute of Oceanography
IGME	Spanish Geology and Mining Institute
IMIDA	Murcia Institute for the Research and Development of Agriculture and Food
INE	National Statistics Institute
INFO	Murcia Region Economic Development Institute
Km	Kilometres
LIG	Spot of Geological Interest
M	Metres
MAP	Mediterranean Action Plan
MCT	Taibilla River Canal Association
MDT	Ground Digital Model
MTN	National Topographic Map
Mm	Millimetres
NE	North - East
ºC	Degree Centigrade
OCDE	Organization for the Economic Development and Co - operation
ONU	United Nations Organization
ORTO	Orthophotograph
PAC	Community Agricultural Policy
PAP-RAC	Regional Activity Centre for the Priority Actions Programme

PDR	Regional Development Plan
PDTC	Coordination Territorial Master Plan
PHCS	Segura River Basin Hydrological Plan
PHN	National Hydrological Plan
PPC	Community Fishing Policy
PSR	Pressure - State - Response
RFBD	Gross Available Family Income
RFD	Available Family Income
RM	Marine Reserve
RSU	Urban Solid Waste
SCAEI	Integrated Economic and Environmental Accounting System
SCI	Site of Community Importance
SEC	Spanish Cetacea Society
SEO	Spanish Ornithological Society
SERIEE	European System for the Gathering of Economic Information on the Environment
SIG	Geographical Information System
SIGA	Geographical and Environmental Information System of the Region of Murcia
SOPTP	Spatial Ortho - Image Series
SPA	Special Protected Area
SPAMI	Specially Protected Area of Mediterranean Importance
SW	South - West
TARU	Treatment of Urban Sewage
Tm	Tonnes
TM	LANDSAT Satellite's Thematic Mapper Sensor
TTS	River Tagus – River Segura Water Transfer System
UE	European Union
UGT	General Workers' Union (Spanish Trade Unions)
UICN	International Union for the Conservation of Nature
UNCCD	United Nations Accord for the fight against desertification in countries affected by severe drought or desertification; particularly in Africa
UNFCCC	United Nations Framework Agreement on Climatic Change
UPA	Union of Small Farmers
Ups	Practical Salinity Units

1. GENERAL INSTITUTIONAL AND POLITICAL CONTEXT

1.1. BACKGROUND TO THE INTEGRATED MANAGEMENT OF COASTAL AREAS IN EUROPE, SPAIN AND THE REGION OF MURCIA

In this section a brief description is made of existing information related to the Integrated Coastal Area Management (ICAM), in the international field (mainly in the European one), within Spain and, specially, of the information related to the background bearing on the management of the coastal areas in the Region of Murcia.

1.1.1. Outside Spain

The overall planning and management of the littoral or coastal areas begun as such in the Nineteen - Seventies. The harmful effects of the economic model are the reason why certain international bodies did convene debate forums and commissioned specific technical reports. In 1973, "Resolution (73) 29 on the protection of coastal areas" approved by the European Council's Committee of Ministers, laid the foundations for the overall planning and management of coastal areas through its recommendations.

These initiatives were still being dealt with in the "Report on littoral activities" (1975) drawn up by the Organization for the Economic Development and Co - operation (OCDE) and in the "International Seminar on Regulation and Exploitation of Coastal Areas' Resources", sponsored by the United Nations Organization (ONU) in 1976. In 1981, the Plenary Session of the CEE Maritime Regions does suggest an "European Coast Charter". In 1991, the "European Conference for the Preservation of the Coastline" took place, which succeeded in laying down the action principles that, at a later stage, would crystallize in Chapter 17 of Programme 21: "Protection of oceans and all types of seas, including land - locked and semi – land - locked seas, of the coastal areas, and protection, rational use and development of their living resources", of the United Nations Conference on the Environment and Development, held in Rio de Janeiro in 1992. Throughout the Nineteen - Nineties, almost all international bodies and institutions did go in depth into theoretical and practical issues, thus establishing the relevant frame of reference (Barragán, 1997).

By way of contribution and response by the EU (UE), two Resolutions approved by the European Council (one passed on 02/25/1992 concerning the future community policy on the European coastal area, and the second, passed on 05/06/1994, concerning a community strategy for the integrated management of the coastal area) did establish the need for an agreed European action. Since 1996 the European Commission is working on the area of the assessment and the proposal of measures related to the situation of the European coastal areas. The document COM(95) 511 did announce a Demonstration Programme by the European Commission on integrated coastal zone management, which was put into effect between 1996 and 1999, and whose purpose was that of "highlighting the practical conditions that ought to be met for sustainable development to become a reality in the whole range of situations existing in the European coastline". This programme became the raw material for a series of six horizontal thematic studies and for the preparation of two documents: "Towards an European Integrated Zone Management Strategy: general principles and policy options" and "Lessons from the European Commission's Demonstration Programme on Integrated Coastal Zone Management (ICZM)", and culminated in the document COM(2000) 547, the final Communication from the Commission to the Council and the European Parliament on Integrated Coastal Zone Management: a Strategy for Europe. The UE issued in 2001 a ruling by the Regions Committee (2001/C148/07) for the purpose of defining and developing an European Strategy for the Integrated Management of Coastal Areas that may promote a sustainable development by combining biodiversity conservation, social and economic development and the preservation of the cultural values of European coastlines.

Finally, in the month of June of last year, 2002, the Official Journal of the European Communities published the "Recommendation by the European Parliament and Council, passed on May the 30th, 2002, on the putting into effect of the integrated management of coastal areas in Europe", which advises the Member States to take a strategic approach to the overall management of their coastal areas based on some basic principles, and either to make or to update an inventory with a view to

identifying the main actors, the rules and regulations and the institutions having an influence on the management of their coastal areas. On the basis of such inventories, the Member States will develop national strategies to put into effect the principles of integrated management. The aforesaid Recommendation includes the minimum contents and the actions to be carried out by each State, setting a 45 - month deadline for the Commission to be informed on the implementation of the Recommendation.

On the other hand, the European Environmental Agency (AEMA), in conjunction with the European Thematic Centres, has set up a team (coordinated by the European Thematic Centre for the Territory and the Environment) to work on indicators and data in order to provide the European Strategy for Integrated Management of Coastal Areas with support. This group's task is that of gathering and organizing data and information on a European level; producing and analysing Europe - wide coherent information and providing integrated regional advice.

1.1.2. Within Spain

The Spanish initiative on ICAM was given a fresh impetus during 2002, coinciding with the start of the term of Spanish Presidency of the European Union, among its main priorities there being that of strengthening the exchange of ICAM - related experiences both within and without the Community. Because of that, a series of activities were devised:

1. To organize the First European Forum on Community Strategies aimed at the ICAM, which took place in the town of La Vila Joiosa (Alicante) during the month of April 2002. This forum was the meeting point for the people having the highest political and technical responsibility in each UE Member State, and in the countries included in the enlargement process thereof, having coastal areas. As a result of this forum, conclusions were drawn out including ten recommendations.
2. To prepare a series of documents:
    - Current state of implementation of the Strategy for Integrated Management of Coastal Areas both in the UE and outside the Community.
    - The Integrated Management of Coastal Areas in the International Agreements and in those concerning the European Regional Seas.
    - National situation reports by the UE coastal countries.

At the beginning of 2003 the First High - Level Meeting on the integrated management of coastal areas did take place, to which the Ministry of the Environment summoned the Self - Governing Regions to debate on the laying down of common criteria to fulfil the European recommendation. In this meeting it was agreed to give the preparation of inventories and strategies for the integrated management of coastal areas an impetus, to promote the development and the implementation of good practices in matters pertaining to the integrated management of coastal areas and to analyse other community instruments having an influence on the coast as well as their importance as regards the management.

Spain has been considering the need to prepare the national inventory required by the Recommendation whose purpose will be that of providing a frame of reference for rules and regulations, institutions and agents having an influence on the regulation and management of its coastal areas, as a basis for the preparation of the national strategy for the boosting of the ICAM:

- Selecting those data being applicable to the GZIC, on a regional and a national level.
- Devising a Geographic Information Base enabling the organization and analysis of all the fields of information selected.
- Inventorying the information related to the Spanish coastal areas.

To achieve these objectives, a standardized methodology has been developed that can be applied on a regional scale, taking, to that end, the Self - Governing region of Cantabria as a pilot study area.

Within the scope of the Self - Governing Regions, the following can be mentioned as examples of ICAM - related initiatives or experiences:

- Self - Governing region of the Balearic Islands. Calviá (Majorca) City Council. It is preparing during the current year a LIFE Project called "Plan for the Comprehensive Management of the Calviá Coastline", intended to become a pilot experience for the Balearic Islands in the preparation of a Comprehensive Management Plan.
- Self - Governing region of Valencia. It has prepared the "Valencian Strategy for the Integrated Management of the Coast" (2002) which describes the basic guidelines for such an integrated management; it also shows in a schematic form the set of problems upon which action is intended to be taken as well as the action lines.
- Self - Governing region of Andalusia. Interregional II - C Project. Plan for the Integrated Management of the Guadiana Estuary and its area on influence (2003).

1.1.3. Within the Region of Murcia

Within the scope of the Self - Governing Region of Murcia, neither initiatives nor experiences directly related to the ICAM principles had been undertaken or carried out up to now; however, there are some precedents fairly close to the philosophy behind these principles.

The antecedents of integrated coastal management in the Region of Murcia date back to the beginning of the Nineteen - Eighties, in keeping with the guidelines set by the 1981 European Coast Charter. In that same year the Provincial Council did commission the work entitled **"Management, exploitation and conservation of resources in the coastline of the Region of Murcia"**, where the criteria and the principles of coastline regulation already appear expounded in detail and implemented in each of the regional coastal sectors.

Subsequently, these guiding principles and strategies are strengthened by means of the territorial regulation study carried out in 1985, entitled **"Territorial Regulation Study of the Mar Menor area and its Surroundings"**. This study was undertaken and published by the no longer existing CEOTMA (Centre of Environment and Territorial Regulation Studies), dependent on the Ministry of Public Works and Town Planning. This work does carry out an analysis of the physical and natural and social and economic systems of the Mar Menor area, as well as a study on the situation of the infrastructure systems. What is most worthy of mention in this study is the drawing up of a series of general criteria for the re - orientation of urban planning and the preparation of development guidelines for the Mar Menor region and its area of influence.

The conclusions of the Study find expression in three key aspects: a) a Territorial Coordination Master Plan and its implementation, b) a review of town - planning, and c) a review of spatial planning.

The Territorial Coordination Master Plan (PDTC), had as its starting point a zonation of the territory, for the purpose of creating a system of discontinuous settlements in the territory alternating with protected areas of high natural value.

As regards the implementation of the PDTC, it was based upon a set of Special Plans: two Special Plans for the Protection of the salt marshes existing in the area (Rasall, Marchamalo and Coterillo), a Town - Planning - Environmental Special Plan for the whole of La Manga, and a series of Special Plans for the Inner Restoration of recently created urban areas. In view of the rules and regulations currently in force, according to which Special Plans were of a lesser rank than municipal Planning, the PDTC was compelled to develop a set of rules and regulations or prescriptions so that they could be put into effect by the Municipal Plans.

On the basis of that, the sections dealing with the Review of Municipal Planning and Partial Planning did recommend the review and adaptation of the latter according to the guidelines put forward by the PDTC.

This study, therefore, did contribute some guidelines which were consistent with an integrated coastal management strategy, thereby becoming one of the main technical foundations for the subsequent regulatory development, which is described below.

The **Regional Act 3/1987, for the Protection and the Harmonization of Uses of the Mar Menor**, did incorporate a significant part of the guidelines and strategies described above. It was a very special and progressive piece of legislation within the context of the times, whose differentiating features were as follows:

- Geographical uniqueness: the enforcement scope of the act was marked by the emptying basin of the Mar Menor, the lagoon and the nearby interior waters, which delimited an area within which there was a common set of environmental problems.
- Pioneering nature: it was the first regional act clearly oriented towards the Integrated Coastal Management.
- "Framework" nature: it did define a series of instruments for reaching its goals. It was, therefore, a "framework" act, it did not take any more or less specific decisions, but it did create the structure and the instruments to do that.

The four instruments laid down in this Act were as follows:

- The Territorial Regulation Guidelines:

  Its objectives consisted in "*laying down the Territorial Regulation criteria, the physical environment in which they must be put into effect and the territorial model with which the General Plans must be coordinated and Subsidiary Municipal Rules affected by it* ".

- The Mar Menor Cleaning Up Plan:

  It was put forward with a view to "*determining, preventing and, should the need arise, reducing the influence of pollution coming from land to sea, as well as that originating from marine uses*". To that end, it included several programmes and measures: an action programme; some measures aimed at the reduction and elimination of lagoon pollution created by agricultural, mining and urban spillage; a programme for the correction of the formation of temporal stream; tips to avoid the uncontrolled dumping of solids.

- The Plan for the Harmonization of Uses of the Mar Menor:

  This Plan was focused on the protection of the lagoon's ecosystems and its area of influence and in the compatibility of uses. Thus, the establishment was foreseen of Natural Resources Protection schemes, the regulation of sea - farming and fishing within the lagoon and the drawing up of a list of marine species to be protected and, when appropriate, the regulation of the catch thereof.

- The Plan for the Regulation and Protection of the Mar Menor Coastline:

  The Regulation and Protection Plan had as its goal the laying down of measures for the protection of the littoral strip affected by the effects of tourist development, such as marinas, access to beaches and promenades.

The development and enforcement of this act were very uneven and, generally speaking, insufficient due to several reasons. At the moment of writing, only the Cleaning Up Plan has been carried out as a specific action, but through a different procedure.

With regard to the main instrument, due to its relevance and to its being an integrational force for the rest, the fact must be highlighted that the Territorial Regulation Guidelines were actually formulated, at an early stage, in 1994, without their ever proceeding any further.

As regards the two other remaining instruments, the Plan for the Harmonization of Uses of the Mar Menor and the Plan for the Regulation and Protection of the Mar Menor Coastline, only some of the studies envisaged in the Act were ever carried out.

Nowadays, the promulgation of Act 1/2001 on the Land of the Region of Murcia has abrogated the aforementioned Act, and its legal development instruments have been replaced by those of the Land Act.

1.2. STRATEGIES AND POLICIES WHICH JUSTIFY AND ENHANCE THE MAR MENOR CAMP

In this section we intend to assess the influence of European, national and regional policies on the evolution of coastal areas; we aim at determining how and to what extent do they help or hamper the different policies for the sustainable management of the coastline. We try to consider their implications for the implementation of the ICAM.

1.2.1. Within Europe

UE policies have a key importance with regard to the ICAM, both in terms of the direct impact that they can have on the physical environment, be it coastal, marine or terrestrial, and as regards their influence on the integration capability of measures related to separate sectorial policies.

Within the scope of the UE, the Treaty Establishing the Community is the legal document that lays down and defines which are the basic principles of the Union's policies.

Article 6 of the Treaty stipulates that the exigencies of environmental protection shall have to be integrated into Community policies; particularly, with a view to foment sustainable development.

1.2.1.1. Sustainable Development Policy

The principle of environmental integration into Union policies currently constitutes one of the foundations of Community action in matters pertaining to the environment. The Treaty of Amsterdam does envision the integration of environmental exigencies into Community policies and actions. The ultimate objective is sustainable development.

The European Council meeting held in Gothenburg (2001) did include among its conclusions the main guidelines of the European Union's strategy in favour of sustainable development, adopted by the Commission.

The European Union's strategy in favour of sustainable development (*Commission Communication issued on May the 15th 2001, Sustainable development in Europe for a better world: EU strategy in favour of sustainable development*), has as its objective the establishment of a long - term strategy that combines the policies aiming at sustainable development from an environmental, economic and social standpoint.

1.2.1.2. Environment Policy

In Title XIX of the Treaty, devoted to the Environment, article 174 defines the basic objectives of Community policy in this area: conservation, protection and betterment of the quality of the environment; protection of people's health; prudent and rational use of natural resources; and fostering of measures on an international scale with a view to facing regional or world - wide environmental problems.

As an important milestone related to the ICAM in Europe, it is worth highlighting the Recommendation adopted by the Parliament and the Council concerning the implementation of the integrated management of European coastal areas. Such a recommendation tries to provide member States with a common vision on the future of their coastal areas based on economic options being both sustainable and capable of creating employment, on the integrity of the ecosystems and on a sustainable management of all resources. In the aforesaid recommendation the Member States are likewise urged to develop, by February 2006, national strategies to foment the integrated management of their coastlines.

The Environmental Programmes

The objectives of the UE environmental policy have been put forward in Action Programmes since the Nineteen - Seventies. Such Programmes have introduced the Union's legislation related to the environment, dealing with the majority of environmental problems, and have achieved positive results with regard to some of them, but the solution to serious environmental problems is still pending. The

Union's political initiatives must deal with these problems by detecting and by acting on the shortfalls of current policies and actions.

The European Parliament and Council did adopt the sixth Community action programme in matters pertaining to the environment. The sixth action programme, which encompasses a ten - year period following its adoption, constitutes the essential environmental side of the community strategy for sustainable development. It makes a case for a new strategic approach in the light of the experience gained in the implementation of the previous programme, by focusing on four priority fields: climatic change, nature and biological diversity, environment and health, natural resources and waste. Accordingly, the new programme intends to go in depth into these environmental priorities and put them into effect more widely.

Among these measures, due to their closer connection with the ICAM, the ones related to Nature and Biodiversity (section 4 of the Programme) and to Environment and Health (section 5) can be emphasized. The matrix of subsection 1.3 includes a brief description of the same.

On the other hand, there are many Union's directives and policies on the environment that can have an influence on the management of the Coast's resources, among them must stand out the legislative acts on pollution control and air quality and water resources; the Directive on integrated pollution prevention and control; the framework Directive on waters (which is analysed below); the Directive for the Assessment of Environmental Impact; the Birds and Habitats Directives and the different strategies concerning biodiversity, landscape, sustainable development, etc. Undoubtedly all of them can play a basic role when it comes to putting a ICAM into effect.

1.2.1.3. Community Agricultural Policy (PAC)

The common agricultural policy (PAC) derives from the treaty (articles 32 to 38). According to section 1 of article 33, its objectives are:

- To increase farming productivity.
- Thus to guarantee an equitable standard of living to the population engaged in farming.
- To stabilize the markets.
- To guarantee the security of supplies.
- To guarantee supplies at reasonable prices to the consumer.

Also of importance for the PAC are the objectives of other community policies, such as the achievement of a high level of public health and consumer protection; the conservation and improvement in the environment; the prudent and rational use of natural resources or the strengthening of social and economic cohesion.

Ever since its inception, the PAC has undergone substantial modifications in different occasions and more recently in the context of Agenda 2000. The basic objectives of this reform consist in the creation of more a market - oriented agricultural economy, as a precondition for the la viability of the European food and agriculture sector; and in the strengthening of structural and environmental aspects and, in a more general way, those related to rural development, so that they become a second pillar of the PAC.

This new approach may contribute to the promotion of the ICAM by fostering an adequate agriculture, by means of the funding of part of the costs by FEOGA.

1.2.1.4. Community Fishing Policy (PPC)

Even though there is no chapter specifically devoted to fishing, the Treaty Establishing the European Community assigns to the PPC the same general objectives as to the common agricultural policy (PAC), (article 33).

On the other hand, article 2 of (CEE) Council Regulations Nr. 3760/92 whereby a community regime is established to regulates fishing and aquiculture stating that, as far as exploitation activities are

concerned, the PPC's general objectives shall consist in protecting and keeping, available and accessible, the living aquatic marine resources and in organizing on a sustainable basis the rational and responsible exploitation thereof, in economic and social conditions appropriate to the sector, bearing in mind its repercussions on the marine ecosystem and paying attention, in particular, to the fishermen's needs as well as to those of the consumers.

For the purpose of being able to provide an adequate response to the challenges facing the fishing industry both on a community and on an international scale, in 2001 a wide - ranging deliberation process was launched on the future of the PPC, which must result in a deep review of that policy.

With regard to the Fishing Policy in the Mediterranean, an insufficient implementation has been detected of the measures focusing on conservation and management. In the Green Paper on the future of the PPC several actions are envisaged intended to achieve a revitalization of the common fishing policy in the Mediterranean, among which the development of the integrated regulation of coastal areas stands out.

1.2.1.5. Community Tourist Policy

In spite of the fact that tourism is one of Europe's main social and economic driving forces and, above all in the coastal areas, and despite its being one of the strongest pressures on the environment, at this moment in time, the UE lacks any specific regulation that could be specifically applied to tourist activities. Here, European Commission activities are included in the generic reference concerning "measures falling within the scope of tourism", in Article 3, subparagraph U, of the Treaty of Amsterdam.

The basic aspect to foment the ICAM is succeeding in having the concept of quality tourism in coastal areas to include the long - term objectives of social, economic, cultural and environmental sustainability.

The Union Council did pass a Ruling in May 2002 concerning the need to improve coordination among policies having an effect on tourism. Through the UE, an Agenda 21 programme incorporates an integrated assessment of tourist activity, the development of an integration strategy for the industry and the preparation of harmonized indicators of sustainable development for tourism.

1.2.1.6. Community Transport Policy

As a part of the point of view introduced by the 1992 White Paper, the Communiqué issued by the Commission on July the 12th 1995 on the action programme for the 1995 - 2000 period, concerning the common transport policy, heralds initiatives in three basic sectors:

- The improvement in the quality with a view to creating integrated transport systems using advanced technologies and also making a contribution towards the achievement of environmental protection and security objectives.
- The improvement in the operation of the single market with a view to fomenting efficient and easy - to - use transport services, enabling consumer choice and preserving, at the same time, social rules.
- The development of the external dimension, by bettering the quality of transport connections between the UE and third countries, and by fostering the access by Community companies to transport markets of other regions in the world.

Nowadays, the UE is still fulfilling the objectives set by the Commission in its 2001 White Paper entitled «The European transport policy for 2010: the moment of truth», on the future of transport policy. In the said paper about sixty new measures are introduced aimed at substantially improving the quality and efficiency of European transports, the main challenge being that of responding to the growing congestion and to the environmental and safety - related problems in this sector. In this regard, the global objective assigned to the common transport policy is that of reversing the current market trends in the road and air sector, and rebalancing the demand among the different types of transport in order to guarantee that a greater resort be had to the types having a brighter future from

the ecological standpoint, such as railways or maritime transport. Should the measures put forward be realized, the Commission believes that by 2010 the economic growth will take place with a proportionally smaller degree of harmful effects created by transport.

Coastal areas usually have a high level of transport activities, both inland and in the sea. However, for the time being, the programme of those trans - European networks has failed to place sufficient emphasis on subsidizing the development of types of transport favourable to the ICAM.

1.2.1.7. Community Energy Policy

The main goal of the energy policy of the European Community, as put forward in the November 2000 Green Paper on the security of energy supply, is to guarantee the security of the supply of energy at affordable prices to all consumers, keeping and fomenting a healthy competition in the European energy market.

In the year 2002, the Commission did put forward, under the title «Intelligent energy for Europe», a new energy - sector, multi - year programme for the 2003 - 2006 period. The suggested programme, which reintroduces the objectives as defined by the Commission in the Green Paper, was devised as the main non - legislative community instrument for the support of this sector. Four specific fields are dealt with: the rational use of energy and control of the demand; new and renewable types of energy; energy - related aspects of transport, and international fomentation of renewable types of energy as well of energy efficiency. In addition, several types of measures are envisaged in each field, such as the implementation of strategies, the creation of financial and market instruments or the development of information and education structures .

The Union's energy policy regulates the traditional fossil fuels, nuclear power and the sources of sun, wind, water and biomass power. All those sources of energy are concentrated in coastal areas, and their generation, transport and distribution could have a major impact of the guidelines ruling the uses of land in the coastline. The Union's policy, even a regards the commitment made by the Community to reduce the use of fossil fuels, frequently provides basic options in this sector with guidance.

The three priorities of the energy policy are: competitiveness, security of supply and protection of the environment. Balancing these objectives is compatible with the goals of the ICAM, even though the European networks may occasionally fail to take into account the impact on the planning and uses of land on a local level.

The proposed Structural Funds guidelines show that in the next programming period emphasis is going to be put on the less developed regions, on the funding of projects aimed at completing network interconnections, increasing energy efficiency and promoting renewable energy sources. In other regions, the investments will be focused on innovative infrastructure projects on a small scale, above all, on those being compatible with the objectives of reducing pollution and fostering energy efficiency.

1.2.1.8. Water Community Policy: Water Framework Directive

In keeping with the Commission Communiqué issued on February the 21st 1996 concerning the community water policy, the objectives of such policy are as follows:

- To guarantee the supply of potable water.
- To guarantee the supply of potable water or of water not intended for human consumption for economic needs different from human consumption.
- Protection and preservation of the aquatic environment.
- Limitation of natural disasters (droughts and flooding).

For the rationalization of existing legislation concerning matters pertaining to water management and pollution the water framework directive has been approved.

This 2000/60/CE Directive of the European Parliament and Council, enacted on October the 23rd 2000, whereby a community frame of action is established in the sphere of water policy, has as its objective

the creation of a community framework for the protection of continental superficial waters, of transitional, coastal and subterranean waters, with a view to preventing or reducing their pollution, promoting their sustainable use, protecting the environment, improving the condition of aquatic ecosystems and lessening the effects of droughts and flooding. Among the obligations laid down by the Directive deserve special mention the studies on the influence of human activity on the water and the preparation of management plans and measure programmes.

The purposes of the measures envisaged in the management plan will be as follows:

- To prevent the deterioration, to improve and to restore the condition of the superficial bodies of water, to achieve that they be kept in a good chemical and ecological state and to reduce the pollution due to spillage and transport of harmful substances.
- To protect, to improve and to restore subterranean waters, to prevent its pollution and deterioration and to guarantee an equilibrium between their collecting and their renewal.
- To preserve protected areas.

1.2.1.9. Community Territorial Policy

Although the Community is not responsible for the regulation of territory, the territorial development policies are aimed at achieving a balanced and sustainable development of the Union's territory. The Union does consider that it must be guaranteed that the following principles be reached to the same extent in every region of the Union:

- Social and economic cohesion.
- Conservation and management of natural resources and the natural heritage.
- More balanced competitiveness of the European territory.

To this end the "European Territorial Strategy" was prepared and adopted by the Member States, to guarantee that the aforesaid objectives be equally reached in each and every region of the Union.

This strategy is deemed to be an adequate frame of guidance for the both the Union's and the member States' sectorial policies having territorial repercussions, as well as for local and regional authorities, in order to achieve a balanced and sustainable development of the European territory.

1.2.2. Within Spain

To describe the State's policy, we are having recourse to the Regional Development Plan (2000 - 2006) (PDR) aimed at the Spanish regions included in Objective number 1 of the Structural Funds, where the Region of Murcia is to be found. In chapter II of this document the main objectives are put forward, of a strategic as well as of an instrumental nature, of common interest to the regions as a whole. Likewise, a brief description is given of the territorial development priorities and directions underlying the said strategic and instrumental objectives, and defining a first general framework. The main fields and lines of action are identified to be acted upon throughout the period under consideration, as well as the most relevant action lines and policies which, in each region, shall normally be dealt with by the different governmental bodies having an interest in the fulfilment of the whole range of their duties and responsibilities.

The distribution of responsibilities between the National Government and the Self - Governing Regions in matters pertaining to the environment, entrusts the National Government with the basic legislation and the Self - Governing Regions with its implementation, the development of its rules and guidelines in law and the additional protection rules and regulations.

1.2.2.1. Sustainable Development Policy

Encouraged by the United Nations Conference on the Environment and Development convened in 1992 in Rio de Janeiro, and on the UE initiative taken in its 2001 European Council meeting held in

Gothenburg, Spain is currently in the process of preparing the Spanish Strategy for Sustainable Development, with the co - operation and participation of all social and economic sectors.

The aims of this strategy are:

- To identify the challenges sustainable development is being faced with.
- To detect opportunities.
- To gather the contributions that may be obtained.
- To establish the key areas requiring action.
- To coordinate the different policies in a participative manner.
- To assess its results from the start.

1.2.2.2. Environment, Nature Conservation and Hydrological Resources Policy

The current situation of Objective - 1 regions, a group which includes the Region of Murcia, requires simultaneous actions aimed at environmental restoration, protection and betterment of the environment and the environmental integration.

With regard to water quality, it is necessary to go on improving the infrastructures guaranteeing the supply of potable water to the entire population, as well as the infrastructures collecting, treating and emptying sewage. The water saving policy is intended for the rationalization of its consumption, of its use in farming and industry; for the elimination of leaks from the piping system and to its reuse.

With regard to air quality, actions are required to compensate for the release of $C0_2$, of SO_2, of nitrogen oxides and of methane and other gases responsible for acid rain and the greenhouse effect, in compliance with the Kyoto Protocol. To that end, the use of alternative types of energy will be encouraged, the rational mobility and the clean transport thereof, as well as the technological innovation and renovation of the polluting systems and procedures.

The management of solid waste, whether urban, agricultural or industrial, and that of harmful waste is another of the strategic lines of action that must be developed, by means of management plans covering the whole of the territory, guaranteeing the reuse, valuation and selective collection of waste.

In the coastal areas it is necessary to regain the environmental quality of littoral areas such as beaches, dune systems, wetlands, etc, which deserve special protection to preserve the natural wealth of our coastline, not to mention their important financial repercussion in view of the significance of the tourist sector to the Spanish economy.

The main fields of action of the different Spanish governmental bodies as established in the PDR are related to:

- The implantation and restoration of the vegetation cover.
- The conservation and sustainable use of biodiversity.
- Waste.
- Air pollution and environmental information.
- The marine environment.
- The green path programme.
- Coasts and coastal areas.
- Meteorology.
- The environmental management of the mining industry.
- Actions aimed at the environment and the management of hydrological resources.
- Environmental education and training.

- The integration of the environment into other policies.
- Environmental assessment.

1.2.2.3. Agriculture and Rural Development Policy

The priority policies and actions to be implemented and taken in compliance with the PDR by the different Spanish governmental bodies as regards agriculture and rural development, are partially in keeping with the guiding principles laid down by the UE in the Agenda 2000; that is to say, they aim at achieving a social and economic development in harmony with the rural environment by introducing the sustainability element; at providing an answer to the possibilities of new labour markets, including the creation and preservation of jobs, as well as the consideration of equal opportunities for men and women in the rural world. The final goal is achieving an improvement in the levels of income and the standard of living of the rural world.

To reach these goals, the basic fields of action are as follows:

- Improvement in agrarian structures and production systems.
- Production regulation.
- Improvement in the processing and marketing of agricultural produce.
- Rural development.
- Natural environment protection.

Nowadays, a participative process is underway in the whole of Spain to draft a White Paper on agriculture and rural development. The purpose of this process is no other than to collect and to analyse in depth the present and the future of the Spanish food and agriculture sector, as well as the whole range of problems facing the rural world. It is the intention of such a process to analyse all real agricultural frameworks so that the challenges related to the future of the Community Agricultural Policy can be faced up to.

1.2.2.4. Fishing Policy

The structural policy in the fishing sector is a constituent element of the cohesion policy, in addition to being an essential element of the common fishing policy. In the Objective - 1 Spanish regions, the said policy, in keeping with the priorities set by the UE Commission for the 2000 - 2006 period, has set as priority objectives the speeding up of the restructuring of the sector by means of the rationalization and modernization of the means of production and other measures having a long - lasting effect.

In putting into effect and developing these priorities, the strategy to be followed by the relevant Spanish governmental bodies being responsible for fishing planning, takes the following considerations and objectives as a starting point:

- The existence of a lesser need to adjust the fishing effort than in the preceding programme.
- Giving absolute priority to the renewal and modernization of the fishing fleet.
- Strengthening the aquiculture sector.
- Fostering the processing and distribution of fishing and aquiculture products, for the purpose of increasing its added value, quality and competitiveness, and diversifying the presentation of species being in excess supply in the market.
- Giving structural support to a policy aimed at the improvement in the quality of Spanish fishing and aquiculture products, and fostering actions carried out by the sector's professional associations.
- Carrying out financial engineering operations.
- Investments for the configuration of information gathering networks.

- Searching for and locating new fishing grounds.

With regard to aquiculture, the Spanish national government, in conjunction with the Self - Governing Regions, has carried out a wide - ranging participative process which culminated in a “White Paper on Aquiculture in Spain”, a document that shall enable the preparation of the medium - term strategy required to boost this activity until it reaches the degree of development making it possible for it to be put on a level with the European sector leaders. In this document the need is highlighted to develop a new coastline integrated management policy dealing with the existing interrelation between the policies and the activities coming together in the coastal areas.

1.2.2.5. Tourist Policy

Spain, due to her natural, cultural, historical and artistic heritage has a great potential for growth in the areas of nature and sports tourism, culture, city and business tourism. The action lines of tourist policy within Spain as a whole will, in future and of necessity, be kept within the framework of the sustainable development concept, comprising both its economic and its social and environmental sides.

Actions to be undertaken by the Spanish governmental bodies over the coming years must envisage, among others, the following fields of action:

- The sustainable development of tourism destinations (from an environmental, economic and social and cultural standpoint).
- The optimisation of the management of tourist business (quality management and technological development)
- Tourism - related training for a sustainable development of the sector
- The appreciation of cultural resources having a tourist interest, and that of the historical heritage (restoration and building of new tourist infrastructures)

1.2.2.6. Transport Policy

Spain’s infrastructure policy is a public expenditure priority and a basic tool of state policy to boost the economy and promote regional equilibrium and territorial cohesion.

Spain has an Infrastructure Master Plan (1995 - 2007), a basic point of reference for the final image of the peninsular plan of transport infrastructures for which the national government is responsible. Actions planned are inspired, in keeping with Community guidelines, by the principles of efficiency, nodal balance, accessibility and sustainability.

In the coming years, the state is envisaging to take action in:

- Completing the High - Capacity Road Network.
- Modernizing railway communications and enlarging high - performance railway corridors.
- Creating new airport infrastructures capable of responding to the increase in air traffic.
- Increasing the capacity of the installations and improving the competitiveness of state - run ports.

1.2.2.7. Energy Policy

The fostering of sustainable development in the Spanish Objective - 1 regions depends on an efficient, diversified and competitive energy sector, with a view to improving the security, flexibility and quality of energy supply and to reducing the costs thereof. Because of that, with regard to power - supply networks, the actions being envisaged, in keeping with the European Commission Guidelines for the 2000 - 2006 period, start from the basic premise that the development of the power - distribution infrastructure does contribute to reduce the dependence on an external supplier as well as the effects of isolation, particularly in remote regions. Accordingly, the priorities are as follows:

- Completing the interconnections.
- Improving the electricity distribution networks.
- Completing and improving the gas transport and distribution networks.

Within the field of renewable sources of energy, a “Plan for the Fomentation of Renewable Sources of Energy” has been drawn up. This document includes the main elements and guidelines that may be deemed to be relevant in the coordination of a strategy aimed at making it possible to meet, as a whole, at least 12% of the primary energy demand by the year 2010 through the growth of each of the areas of renewable sources of energy. Reaching such percentage entails doubling the current share of renewable sources of energy. It is necessary to incorporate more active policies for achieving energy efficiency and environmental protection.

1.2.2.8. Water Resources Policy

The current Spanish hydrological policy originates from the 29/195 Water Resources Act, enacted on August the 2nd. This piece of legislation affects both the continental and the subterranean waters. For the purpose of achieving an adequate regulation of the management of water resources in our country, the hydrological planning process envisaged in Article 38.1 of the aforesaid Act 29/185 has been set in motion, which envisions hydrological planning as an instrument to “achieve the best possible satisfaction of water demand and to balance and to harmonize regional and sectorial development, by increasing the availability of the said resource, by protecting its quality, by economizing on its consumption and by rationalizing its uses in harmony with the environment and the rest of natural resources”. For such purposes, paragraph 2 of article 38, stipulates that the “planning will be carried out through Basin Hydrological Plans and through the National Hydrological Plan”.

The National Hydrological Plan (PHN) “is devised as the instrument that shall enable the drawing up of the Spanish hydrological resources map for the next 20 years, in a manner that respects the necessary solidarity among her peoples, regions and districts, by satisfying the water - supply needs of urban centres as well as those of an agriculture typical of an European country in the Twenty - First Century, a quite demanding one as regard the quality of the environment”.

The PHN intends to reach four main goals:

- Attaining a good ecological condition in the public hydraulic domain.
- Satisfying current and future water demand by means of a rational, sustainable, balanced and equitable exploitation of water, making it possible at the same time to guarantee the sufficiency and quality of the resource for each use, and the long - term protection of available hydrological resources.
- Attaining the proper equilibrium and harmonization of regional and sectorial development for the sake of achieving the vertebration of the national territory.
- Rebalancing the availability of the resource by protecting its quality, by economizing on its uses, in harmony with the environment and the rest of natural resources.

The envisaged transfer of hydrological resources between the basins of the Ebro and Segura rivers will be translated into actions having a foreseeable high impact on the scope of the MAP - CAMP. As described in the National Hydrological Plan’s Strategic Environmental Assessment, the overexploitation situation of the Campo de Cartagena aquifer could be alleviated thanks to the arrival of new resources from the Basin of the River Ebro.

The National Hydrological Plan makes abundantly clear that the new contributions shall not be destined to enlarge the irrigated land area; accordingly, and in principle, the appearance of the Campo de Cartagena district would not be changing too much through these future actions.

1.2.3. Within the Region of Murcia

1.2.3.1. Sustainable Development Policy

As it happens in Spain as a whole, the Region of Murcia is also preparing the future Sustainable Development Strategy for the Region of Murcia. Such strategy is conceived as in instrument for the integration of the Region's knowledge and wisdom and of its values concerning sustainability. It must make it possible to identify shortages, objectives, commitments and instruments, thus being able to guide the strategic policy decisions and its instruments to attain lasting equilibrium in the achievement of a better quality of life.

Currently work is underway for the:

- Identification and selection of the strategy's objectives.
- Identification and selection of the strategic lines.
- Identification and selection of actions and commitments.
- Preparation of assessment procedures.
- Preparation of an indicator system for the monitoring plan.

The Region of Murcia has committed itself to a more rational use of resources, generating the smallest of environmental impacts. In its early stages, the Strategy is finding support on a set of environmental instruments acting as starting points:

- In matters pertaining to environmental quality, the "Environmental Protection Guidelines of the Region of Murcia".
- In matters pertaining to natural resources and conservation of nature, the "Regional Strategy for the Conservation and Sustainable Use of Biological Diversity" and the "Forestal Strategy of the Region of Murcia".
- In matters pertaining to education, the "Regional Environmental Education Strategy"

On a local level, since the role played by the municipalities in environmental management is becoming increasingly important, initiatives are being carried out whose purpose is the adoption of action programmes similar to the one approved in the Rio summit conference, known as Local Agenda 21. In this regard and by means of an agreement, the accession is being promoted of the Municipalities of the Region of Murcia to the Aalborg Charter and to the launch of a strategic planning in matters pertaining to the environment and to sustainable development (Local Agenda 21)

1.2.3.2. Strategic Development Plan for the Region de Murcia 2000 - 2006 - Supplement to the Programme. Murcia Integrated Operational Programme 2000 - 2006

The Strategic Development Plan for the Region de Murcia establishes the general framework for action by the Government Bodies and acts as a guideline for actions by the social and economic actors in the 2000 - 2006 period.

The Plan does identify eight critical points or strategic objectives of the Region's economic and social development:

- The adjustment of basic transport and communications infrastructures to guarantee the Region's connectivity to the markets and the internal vertebration of the territory.
- The promotion in the social and economic field of the advantages of added value for the environment.
- The adjustment of training to the social and economic development model that guarantees full introduction of educational options and their specialization in order to boost job creation.
- The modernization of business culture and management, by making a commitment to quality and internationalisation as instruments for increasing the Region's businesses competitiveness.

- Technological innovation to lay the foundations for the adequate transfer of Research and Development to the economic fabric in keeping with its specific characteristics and boosting its development.
- The sustainable use of natural resources to optimise their exploitation as a wealth - generating source in the economic fabric, preserving their future renewal.
- Equal opportunities and enhancement of the quality of life, all of which shall lead to the improvement in the Region's habitability by making it more attractive to human and economic resources.
- Territorial deconcentration and decentralization as a model for the Region's internal development.

1.2.3.3. Nature and Environment Conservation Policy

With regard to the environment - related regional policy, there is a framework document entitled **"Environmental Protection Guidelines" (Horizonte 2006)** from which the following objectives and goals can be highlighted:

- Gradual reduction of the release of pollutants from fixed sources and monitoring of urban pollution generated by transport and by specific activities.
- Readying the Region for impacts stemming from climatic change.
- Effective enforcement of the prohibition of the use of ozone - layer depleting gases.
- Preventing industrial spillage without the appropriate treatment.
- Reducing the size of the population and the range of land uses exposed to noise levels affecting the health and the quality of life.
- Regeneration of Portman Bay and environmental restoration of the mining highlands.
- Reducing the generation of waste, maximizing its recycling and reuse. Safe elimination of waste unsuitable for recycling or reuse.
- Prevention of soil contamination and regeneration of contaminated soils.
- Carrying out the assessment of environmental impact as a basic prevention tool in keeping with the experience gained over the last five years.
- Development of economic instruments for the protection of the environment (spillage, waste and release tax and Environmental Protection Fund)
- Formation of the Environmental Inspection Corps and establishment of an interdepartmental coordination network for matters related to environmental inspection, specially with the co-operation of Local Councils.
- Establishment of the Environmental Integration and Coordination Commission with a view to integrating the environment into sectorial policies emanating from the Regional Government.
- Enhancing the role played by municipalities in environmental protection.
- Adjustment of businesses to environmental law by strengthening the new company - relationship framework by means of voluntary agreements.
- Development of technical assistance programmes for companies and training of environmental agents.
- Fostering the use of self - regulation in the businesses.
- Enhancing the role played by government bodies as consumers in the rearrangement of demand.
- Promoting the joint responsibility of the main regional economic and social actors.

- Establishing funding instruments to guarantee the financing of environmental policies and providing the businesses with incentives to stimulate environmental investments.

With regard to the protection and conservation of nature, the basic objectives stemming from the **"Regional Strategy for the Conservation and Sustainable Use of Biological Diversity "** are as follows:

- Promoting co - operation among interested parties
- Integrating biodiversity into sectorial and inter - sectorial policies.
- Creating mechanisms for the management of natural resources.
- Promoting research, knowledge and training in the field of biodiversity.
- Promoting communication and education for biodiversity.
- Devising regulatory and financial instruments.
- Boosting inter - territorial co - operation.
- Integrating the conservation of biodiversity into local politics.

To achieve these objectives, guidelines have been laid down for the preparation of seven specific action plans on biodiversity jointly agreed with the interested parties (farming sector, fishing and aquiculture industries, territorial regulation and town planning, rural development, tourism, mining and renewable sources of energy sector), which are to include specific measures aimed at minimizing the identified negative effects and at making the most of the opportunities that existing uses and practices may provide. In the case of other analogous planning instruments envisaged (national policies, other business sectors not included in the action plans or other regional strategies related to biodiversity), guiding principles are laid down for the coordination and integration of biodiversity policy. Finally, within a flexible framework, the seventy - two directly applicable main measures are established, having no links with the action plans, concerning:

- Regulation of natural resources and area planning.
- *In situ* and *ex situ* conservation.
- Access to genetic resources and technologies. Traditional knowledge.
- Institutional and regulatory measures.
- Economic measures.
- Prevention mechanisms: assessment of environmental impact.
- Environmental education and citizen participation.
- Research and transfer of knowledge.
- Inter - territorial coordination (Iberian South - Eastern Ecological Region) and international co - operation (Magreb and Latin America)

1.2.3.4. Town - Planning and Territorial Regulation Policy

The regional territorial regulation policy tries to guarantee a sufficient supply of land, in terms of quality and quantity, for residential and industrial use, enabling both the growth and the improvement in competitiveness and habitability in the Region.

It is the policy's goal to maintain the availability of enough land for residential and industrial use with a view to guaranteeing the access to housing and the promotion of industrial development through the provision of adequate infrastructures and services in peripheral areas, improving links with major basic communications axes.

In compliance with Act 1/2001 on Land in the Region of Murcia, the Guidelines and the Territorial Regulation Plan for the Coastline of the Region of Murcia have been drawn up. This territorial regulation instrument is deemed to be a planning instrument, whose purpose it is to regulate the

activities and the coordination of town - planning and sectorial policies having an impact on the region.

The main aims of this instrument are sustainable development, the improvement in the quality of life and the achievement of equilibrium within the territorial structure. These major objectives are specifically embodied, for the Mar Menor area, in the development of a range of tourist lodging facilities aimed at breaking the seasonality and at increasing the value of the current tourist areas. Annex III. Inventory of plans, programmes and projects related to the scope of the Mar Menor CAMP, includes the main actions put forward by the Guidelines.

1.2.3.5. Regional Agricultural Policy

The regional Policy, based on the provisions of the Community Agricultural Policy, aims at ensuring the continuity of the strategic objectives for the sustainable development of the food and agriculture and the stockbreeding sectors; some of the said objectives, worthy of special mention, entail actions concerning irrigated crops, boosting research, supplementing farmers' income, strengthening the development of the food and agriculture industry as a regional strategic sector and the protection of the environment.

The major objectives of the regional agricultural policy are as follows:

- Planning and implementation of agricultural research programmes and transfer of the results achieved to the sector.
- Fomenting agricultural production and improving the healthiness of plants.
- Supporting the food and agriculture industry by giving stimulus to technological innovation and by improving the quality of food and agriculture produce.
- Fomenting stockbreeding and improving the healthiness of livestock.
- Modernizing agrarian structures.

Sustainable development in agriculture and in stockbreeding requires the gradual transformation of current production systems, by searching for alternative, more environmentally - friendly processes. This sustainable farming consists of two types of agriculture: integrated and ecological. The promotion is intended of actions aimed at fomenting the sustainability of the sector, among which the following stand out:

- Fomenting ecological stockbreeding.
- Fomenting the integrated production of fruit and vegetables.
- Fomenting extensive agriculture.
- Fomenting apiculture.
- Environmental programmes for olive groves, almond - tree groves and extensive stockbreeding.

1.2.3.6. Regional Fishing Policy

The foundations of regional fishing policy are to be found in the attempt to achieve a rational and sustainable exploitation of fishing stocks, its main action lines being as follows:

- The conservation and regeneration of fishing stocks through the protection of coastal areas.
- The regulation of the fishing industry through the regulation of fisheries and the monitoring of same.
- The development of aquiculture, regulating the sector's growth.
- The development of structural measures related to the fishing fleet, fishing activity, marketing and processing of fishing products.
- Training and research actions.

Among the actions envisaged in matters pertaining to sea fishing, aquiculture and fishing for shellfish the following stand out:

- Compliance with the Operational Fishing Programmes of the Spanish Government (breaking up of old boats, adjustment of fishing activities)
- Renewal and modernization of the fishing fleet.
- Development and modernization of the production and distribution fabric, including the protection of fishing stocks, the fomentation of aquiculture, the improvement in fishing - port facilities and in the marketing and processing of products.
- Boosting traditional fishing.
- Promoting and searching for new commercial outlets.

The Coastal Strip Restoration Master Plan is an instrument whose objective is the protection of littoral ecosystems consisting in natural breeding areas, areas where young fish grow, and areas for the development of species of interest to the fishing industry, with a view to boosting fishing activities, in particular, the traditional ones.

1.2.3.7. Tourist Policy

The Region's tourist sector is bound to become one of the basic pillars supporting the Region's economy, specially, in the service sector.

In order to provide it with an organic and structured framework able to meet the whole of the sector's needs, the "Murcia Regional Plan for the Promotion of Tourism" has been prepared, whose objectives belong to two different levels:

EXTERNAL: Those concerning the promotion of tourism vis - à - vis the customers and the marketing of tourist products in themselves, based upon:

- Eliminating the seasonal factor.
- Quality.
- Diversification.
- Customer loyalty.

INTERNAL: Those concerning the continuous improvement in the organization of the Plan as a whole within the framework of institutions, bodies and businesses making it up and acting with a view to achieving the external objectives.

- Vertebration of activities.
- Sparingness of resources.
- Efficiency of actions.
- Action synergy.
- Continuity and monitoring.

On the other hand, the Guidelines and the Territorial Regulation Plan for the coastline of the Region of Murcia, do put forward a series of recommendations, based on segments of the potential market known as "priority segments": nautical and underwater tourism, sun and beach tourism for people having a medium - high level of income, health tourism, cultural tourism and congress and convention tourism.

1.2.3.8. Energy Policy

The Regional Energy Planning document is currently in the process of being prepared. This plan includes a wide - ranging programme of actions intended to boost the different parts that make up the energy - related process, from generation and transport to distribution.

One of the aspect on which the biggest emphasis will be placed is the promotion of renewable sources of energy by articulating measures aimed at increasing power generation from clean sources. It also includes specific measures for the promotion of energy efficiency and saving. In this particular field, the Energy Management Agency has been created, a body devoted to encouraging the saving of energy and the rational use of the power - generation sources in the Region; specially, by making the most of renewable sources.

1.2.3.9. Water Policy: Segura River Basin Hydrological Plan

The Segura River Basin Hydrological Plan, approved by Royal Decree 1664/1998, enacted on July the 24th, has, among others, the following contents and includes the following tasks:

- The inventory of hydrological resources.
- Current and foreseeable uses and demand.
- Criteria concerning use priority and compatibility, as well as the order of precedence of the different uses and exploitations.
- The allocation and reservation of resources to current and future uses and demands, as well as the conservation or restoration of the rural environment.
- The basic characteristics of water quality and those concerning the regulation of the spilling of sewage.
- The basic rules concerning improvements and transformations into irrigated land guaranteeing that the best use be made of hydrological resources and available land as a whole.
- The protection perimeters and measures aimed at the conservation and regeneration of the affected resources and environment.
- The hydrological - forestal plans and those for the conservation of soil being the responsibility of the government.
- The guidelines for the replenishment and protection of aquifers.
- The basic infrastructures as required by the Plan.
- The criteria for the assessment of the utilization of energy and the establishment of the conditions required for their implementation.
- The criteria for studies, actions and works aimed at preventing and avoiding damages due to flooding, freshets and other hydrological phenomena.

The Basin Hydrological Plan envisages a series of actions, divided into groups according to Programmes. Among them, due to the impact they may have on the Mar Menor area, the following programmes can be highlighted:

- Programme Nr 9: Improvement, modernization and consolidation of irrigated crops. This programme is oriented towards the “rationalization of the use of water with a view to optimising its utilization, achieving an equitable distribution among all pieces of irrigated land”.
- Programme Nr 15: Underground Waters. Sub - Programme 2 envisages actions for the desalting of sea and brackish water. The recently - built desalting plant of San Pedro del Pinatar is the result of this programme. Sub - Programme 3, for the cleaning - up, purification and reuse of sewage, puts forward the necessary actions for the building of the main infrastructure required for the Mar Menor Cleaning-Up Plan. The so - called Mar Menor Purification System consists of two Sewage Works (EDAR Mar Menor South, under construction as the Basin Plan is being drawn up; and EDAR Mar Menor North) as well as of two main sewers, North and South. The total budget for these actions amounts to 31,5 million Euro, and they are envisaged for the first lustrum of the Plan.

The actions envisaged in the Segura River Basin Hydrological Plan and included in the National Hydrological Plan will be funded by the latter’s budget (2001-2008) (Desalting plant in the Campo de

Cartagena, Sewer and EDAR Mar Menor North, Piping for sewage in the Mar Menor Southern Area), and the rest, over a twenty - year period.

1.3. INSTITUTIONAL STRUCTURE

This section attempts to describe[1] such public bodies as may be relevant in so far as they perform public responsibilities dealing with matters of interest to the ICAM, be it as a result of the very substantiveness of their responsibilities[2], be it because they are legally authorized to put in to effect environmental integration and the promotion of the sustainable use of resources as a part of their respective range of substantive responsibilities. In the case of the former, the organic level performing the responsibility, has been described in more detail, whereas, with regard to the latter, the higher, or political management, level shall be expounded. For the selection of these relevant responsibilities the CAMP general goals, as well as the more specific objectives of this project, have been taken into consideration.

1.3.1. Central Government's Bodies

A) Ministry of the Environment

The Ministry of the Environment has been entrusted with a range of a highly relevant responsibilities, both environmentally substantive and concerning the management of certain extremely important natural resources, within the scope of the CAMP for the ICAM, due to the environmental integration and the sustainable use of resources.

The following Directorates General perform responsibilities required by the ICAM:

- Directorate General of Environmental Quality and Assessment.
  - The formulation of the national policy of environmental control and quality, in coordination with the Self - Governing Regions, taking into account the rules and regulations laid down by the UE and other international bodies, in keeping with sustainable development; the preparation and monitoring of the Urban Waste and Hazardous Waste National Plans and the National Plan for the Regeneration of Polluted Soils.
  - The development and instrumentation of actions required for the launch of Programme 21, adopted in the 1992 Rio Conference, in coordination with the interested Government Bodies, in matters being the responsibility of this Directorate General.
  - The participation in international institutions and the monitoring of the enforcement of International Agreements related to matters being the responsibility of this Directorate General.
  - The submission of proposals for the declaration of environmental impact being the responsibility of the National Government, as regulated by legislation currently in force.
  - Implementation of the mechanisms leading to the integration of the environment into the different economic sectors and monitoring of their actions.
  - Operational control of the State - Owned Company EMGRISA (management and treatment of industrial waste and polluted soils).
- Directorate General of Nature Conservation.
  - Formulation, in coordination with the Self - Governing Regions, of the nature conservation policy, of the basic criteria and general provisions for the regulation of the flora, fauna, natural habitats, natural ecosystems and woodlands.
  - Preparation of statistics and inventory of natural areas, threatened species and ecosystems, and preparation of the Nature Database; establishment of coordinated plans for the

[1] The structure here described is the one in existence in June 2003; therefore, it could web be necessary to update it.
[2] By way of example, in matters related to pollution control and prevention, in nature conservation, in protection and management of water resources, etc.

recovery of the wild flora and fauna, with the co - operation of the Self - Governing Regions.

- Co - operation with other management bodies from the Department and the Ministry of Agriculture, Fishing and Food, in the preparation of general provisions being environmental in nature and concerning the conservation of the marine environment.
- Preparation, with the co - operation of the Self - Governing Regions, the General Directorate of Hydraulic Public Works and Water Quality and the Hydrographical Confederations, of the plans and programmes for hydrological - forestal restoration, reforestation, preservation and betterment of the vegetation cover and the management of biodiversity in the woodland masses protecting the river basins shared by several Self - Governing Regions, and carrying out the actions included in them.
- The preparation, with the co - operation of the Self - Governing Regions and the rest of Ministries, of the National Programme for Action against Desertification.
- The participation in international institutions being responsible for matters related to the General Directorate's responsibilities, and the monitoring of International Agreements regulating the aforesaid matters.

- Directorate General of Coasts.
  - Management and protection of the marine - terrestrial public domain.
  - Actions intended for the defence, protection, and conservation of elements making up the marine - terrestrial public domain and, in particular, actions related to the creation, regeneration and restoration of beaches.
  - Coordination of plans and programmes for the ecological protection of the marine environment and the coastal ecosystems.
  - Environmental monitoring of activities carried out offshore; participation in international institutions and monitoring of International Agreements (Focal Point of both the Barcelona Convention and MAP); etc.
- General Directorate of Hydraulic Public Works and Water Quality.
  - Preparation of the National Hydrological Plan and providing assistance to river - basin bodies for the preparation of their respective Hydrological Plans.
  - Preparation of the regulatory scheme and coordination of international - scope actions in matters concerning water resources.
  - Control of quality levels in activities capable of provoking pollution or degradation in the hydraulic public domain.
  - Fostering cleansing activities aimed at reducing and, as the case may be, eliminating pollution from continental waters.
  - Dependent bodies participating in the CAMP area: Taibilla River Canal Association (MCT) (water supply in the CAMP area); River - Basin Body: Water Commissariat and Segura River Hydrographical Confederation (CHS) (management and protection of the public hydrological domain in the Segura River Basin); Segura River Water State - Owned Company, S.A. (promotion of hydrological public waters).

B) Ministry of Agriculture, Fishing and Food

The Ministry of Agriculture, Fishing and Food has a series of substantive responsibilities related to economic sectors - agriculture, fishing[3], aquiculture and stockbreeding - of significance to the ICAM within the scope of the CAMP, due to environmental integration and the sustainable use of resources. Such responsibilities consist, in general terms, in holding the representation before the UE in matters

[3] As a part of the functions it performs in matters related to fishing, it has established the "Cabo de Palos – Islas Hormigas" Marine Reserve of Interest to Fishing.

related to the formulation and implementation in Spain of the Community Fishing Policy, the Common Agricultural Policy, and the Rural Development Policies; in the preparation of basic regulatory schemes and in the coordination of general sectorial planifications to be put into effect by the Self - Governing Regions (e.g. the National Irrigated Land Plan).

C) Ministry of Economy

The Ministry of Economy, regardless of its capability to foster sustainable economic development, has a series of substantive responsibilities related to the general planning of economic sectors - tourism and energy - of significance to the ICAM within the scope of the CAMP, due to environmental integration and the sustainable use of resources. We must finally mention that some public bodies are subordinated to the said ministry, such as the National Statistics Institute (preparation of demographic and social statistics) and the Institute for Energy Diversification and Saving (IDEA) (promotion of energy efficiency and renewable energy sources); the Spanish Tourism Institute (research on factors having an influence on tourism and statistics thereof).

D) Ministry of Transports and Communications

The Ministry of Transports and Communications has a series of substantive responsibilities related to the general planning of economic sectors - communications and interregional transport - of significance to the ICAM within the scope of the CAMP, due to environmental integration and the sustainable use of the territory. We must finally mention that some public bodies are dependent on the said ministry, namely: Directorate General of the National Geographical Institute (providing technical assistance to and development of cartographic, geodesic and tele - detection, etc. of general interest) and the Public Works Study and Experimentation Centre (CEDEX) (technical assistance and research on civil and environmental engineering).

E) Ministry of Science and Technology

Dependent on this Ministry are a series of public research centres devoted to matters of significance to the ICAM within the scope of the CAMP due to environmental integration and the sustainable use of natural resources. The centres directly involved in the CAMP[4] as a result of their work are: Centre for Applied Edaphology and Biology of River Segura (CEBAS) (research on erosive processes and desertification); Murcia Oceanographic Centre (research on marine resources).

For further information see Annex II. Organizational Charts of the public government bodies significant to the development of the CAMP and other government bodies with potential involvement. General State Administration.

1.3.2. Government of the Region of Murcia

A) Department of Agriculture, Water Resources and the Environment

The Department of Agriculture, Water Resources and the Environment is the regional government body most widely linked with the ICAM, both because of the very substantiveness of its responsibilities, concerning environmental quality and nature conservation, and for being empowered to take care of environmental integration and the fomentation of the sustainable use of resources related to its respective fields of responsibility in matters concerning to agriculture, stockbreeding, fishing and water. On the other hand, the executive nature of many of its responsibilities and powers for the regulatory development of the general state administration's basic legislation, entails a greater repercussion of its actions on the territory and the activities it fosters .

The following Administrative Units do perform functions indispensable to the ICAM[6]:

- Water and Environment Sectorial Secretariat. Functions:

[4] There are research studies and projects carried our by these centres listed in the information data base.

[6] See Annex II for greater detail on the functions performed by the Department in the promotion of substantive sectorial economic activities.

  - It directs and coordinates the performance of functions and the fulfilment of responsibilities of the Directorate General of Water Resources and the Environment.
  - It takes direct responsibility for matters related to environmental quality, pollution, assessment of environmental impact, qualified activities, training (Environmental Quality School), and environmental education.
  - Implementation of the Provisions of Council Directive 96/62/EC, enacted on September 27th 1996, on the assessment and control of air quality.
  - Implementation of CEE Council Regulations 259/93, enacted on February 1st 1993, concerning the vigilance and control of the transport of waste. It is the Public Body entrusted with the award of ecological labels and the carrying out of ecoaudits.
  - Finally, we must mention that the Consortium for the Management of Solid Waste (COGERSOL) is dependent on this Secretariat.

- Directorate General of the Environment. Functions:
  - Overall planning and management of the territory in matters related to the preservation, conservation and sustainable development of natural resources, the biodiversity of same, protected natural areas, natural habitats included in the Natura 2000 Network, forestal lands and livestock ways.
  - Protection of wild flora and fauna species; protection of inland water ecosystems.
  - Management of forestal, cynegetic and angling resources and exploitation of same.
  - Development and preservation of the Geographic and Environmental Information System (SIGA).
  - Analysis and assessment of the condition of natural resources, inclusion of environmental criteria in actions having repercussions on the natural environment, and environmental integration into the different spheres of planning and sectorial programming and, in particular, into those receiving European Union funding.
  - Implementation of legislation currently in force on right of access to environmental information, preparation of statistics and development of indicator systems to report on the condition of the environment.
  - Regional focal point of the European Environment Information and Observation Network (EIONET Network)
  - The Wetland Research and Conservation Centre, based in San Pedro del Pinatar, is dependent on this General Directorate.
- Directorate General of Water Resources. Functions:
  - Fulfilment of responsibilities in matters pertaining to hydraulic works, treatment of sewage and hydrological resources.
  - This General Directorate does perform the function of public control of the Murcia Region Sewage Treatment and Sanitation Institution (ESAMUR) for the management and funding, through the sanitation fees, of the correct maintenance of the urban sewerage and treatment plants.

B) Department of Tourism and Territorial Regulation.

This Department has been entrusted with a series of substantive responsibilities related to the planning and carrying out of public activity in matters pertaining to territorial regulation, landscape protection, mapping, territorial and geophysical information SIG of interest to the region, and promotion of tourist activities and infrastructures. The tourist industry is one of the relevant sectors, due to its significance to the social and economic development to the ICAM, within the scope of the CAMP, in view of the environmental integration and the sustainable use of the natural resources that it tries to add value to.

C) Other Departments of the regional government whose mutual connections will have to be assessed[7] as regards the implementation of the CAMP, and considered, should the case arise, to enhance institutional support to it.

- Department of the Presidency. The following functions performed by its General Directorates (DG) may be of interest: DG of Project Study, Planning and Coordination, due to its involvement in the management of the preparation of the Murcia Region Sustainable Development Strategy; DG of Civil Protection, due to its responsibility for the prevention of technological risks; and the DG of Local Government, due to the significance of environment integration into its responsibilities for training local civil servants (Local Government Training School), for the preparation of local public works, and for providing municipalities with technical assistance in putting local action plans into effect.
- Department of Economy and the Treasury. Due to the coordination of the preparation of the Murcia Regional Strategic Development Plan, and the management of the allocation of European Union Structural Funds. The Regional Statistical Centre, whose function it is to prepare and to coordinate the Self - Governing Region's own statistics, is dependent on this department.
- Department of Education and Culture. Due to the responsibilities it has concerning education and the preservation of the historical, archaeological and cultural heritage.
- Department of Health and Consumer Affairs. Due to its responsibilities for matters pertaining to public and environmental health.
- Department of Labour and Social Policy. Due to the responsibilities it has for the training and qualified use of employed and unemployed people alike, for the purpose of integrating the environment into economic activities.
- Department of Science, Technology, Industry and Commerce. Due to its task of achieving environmental integration through its responsibility for fomenting industrial activities and technological change. Other bodies of interest being under the functional control of this Department would include: Séneca Foundation, Integra Foundation, Region of Murcia Agency for Energy Management (ARGEM), Quality Information Centre, Euro - Mediterranean Hydrotechnics Institute and Murcia Region Economic Development Institute (INFO).
- Department of Public Works, Housing and Transport. Due to its responsibilities for matters pertaining to urban planning and public transport infrastructures (roads, marinas, etc.), linked as they are with the necessary environmental integration of infrastructures and the regulatory scheme for the development of settlements.

For further information see Annex II. Organizational Charts of the public government bodies significant to the development of the CAMP and other government bodies with potential involvement. Government of the Region of Murcia.

1.3.3. Local Government

The following municipalities are included within the CAMP area: Los Alcázares, Cartagena, Fuente Álamo, Murcia, San Javier, San Pedro del Pinatar, Torre Pacheco and La Unión. The said local councils do fulfil a series of responsibilities related to the public services they render concerning the quality of the environment - collection and treatment of urban solid waste, potable water supply and sewage treatment - and the instruments for urban planning and development of the settlements through environmental integration. In this regard, it is the local councils which take care of the preparation of the Local Agenda 21. For the fulfilment of these responsibilities and the rendering of these services, local councils are organically structured into different areas which vary depending on the individual municipality; therefore, not all have created environment areas nor, as the case may be, the said

[7] That assessment will enable the selection of such specific functions performed by the regional government as may be relevant to the rectification of the weaknesses and the fomentation of the opportunities offered by sectorial activities for the purposes of environmental integration.

areas are in charge of the relevant public services. Finally, we must mention the Mar Menor Tourist Association[89], an official body linked with the coast's municipalities, and the La Manga Administrative Association, consisting of the municipalities of San Javier, Cartagena and the Self - Governing Region of Murcia, both of which can be of importance to the CAMP as a result of the functions they perform; the former, concerning the promotion and the development of public - interest tourist infrastructures and, in the latter's case, for the coordination of actions related to the La Manga area public services.

For further information see Annex II. Organizational Charts of the public government bodies significant to the development of the CAMP and other government bodies with potential involvement.

1.4. LEGISLATIVE FRAMEWORK

A list is included below of the different pieces of legislation (legislative, regulatory, administrative, etc.), in matters pertaining to the conservation of nature, the environmental assessment of projects, plans and programmes, rules and regulations related to the tourist sector and, finally, to hydrological planning and to natural resource planning.

They have been classified according to the legislative level they stem from: European, national and regional. Besides, the references from communiqués issued by the European Commission in matters pertaining to biodiversity, sustainable farming and wetlands, have been added.

INTERNATIONAL REGULATORY SCHEME

International agreements concerning the Protection of Threatened Species.

- Convention on the Conservation Of Migratory Species and wild animals (Bonn Convention, 1979).
- Convention on International Trade in Endangered Species of wild Fauna and Flora (Washington Convention) (CITES) (1986).
- Convention on the Conservation of Europe Wildlife and Natural Habitats (Bern, 1979).
- Agreement on the Conservation of Cetacea of the Black Sea, the Mediterranean and Continuous Atlantic Area (ACCOBAMS) (Monaco, 1996).

International agreements concerning the protection of habitats, environments and cultural heritage

- RAMSAR Convention on wetland (Ramsar Agreement, 1971).
- Convention on fishing and Conservation of Living Resources (1971).
- Convention for the Protection of the World Cultural and Natural Heritage (UNESCO, 1972).
- Council on Ocean Law (1982).
- Paris Agreement on the Conservation of Mankind's Heritage (1975).
- Barcelona Convention for the protection of the Mediterranean sea against the pollution (1976). Protocol concerning specially protected areas and biological diversity in the Mediterranean (Ratified by the Kingdom of Spain on December the 23rd 1998 in "Instrument for the ratification of the protocol on specially protected areas and biological diversity in the Mediterranean and annexes thereto, as adopted in Barcelona on June the 10th 1995 and in Monte Carlo on November the 24th 1996, respectively").
- Declaration of the "Mar Menor and the Eastern Mediterranean Area of the Coast of the Region of Murcia" as Specially Protected Area of Mediterranean Improtance (SPAMI), in November 2001, in compliance with the Protocol concerning specially protected areas and biological diversity in the Mediterranean (Barcelona Convention).

Agreements promoted at the Rio Conference (1992)

[8] Established in 1992.
[9] Voluntary association of municipalities for the joint management of certain municipal services.

- Convention on biological diversity - CBD - (1993).
- United Nations Convention to combat desertification in countries experiencing serious drought and desertification; particularly in Africa – UNCCD - (1994)
- United Nations Framework Agreement on Climatic Change – UNFCCC - (1992).

EUROPEAN UNION REGULATORY SCHEME

Conservation of Nature Directives.

- Directive 92/43/CEE, concerning on the conservation of natural habitats and the wild fauna and flora.
- Directive 79/409/ CEE, concerning the conservation of wild birds, as enlarged by Directive 91/294/CEE.

Directives on matters pertaining to hydrological resources.

- Council Directive 76/160/CEE, approved on December the 8th 1975, concerning the quality of sea - bathing waters, as amended by: Council Directive 90/656/CEE, approved on December the 4th 1990 and Council Directive 91/692/CEE, approved on December the 23rd 1991.
- Council Directive 91/271/CEE, approved on May the 21st 1991, concerning the treatment of urban sewage. Amended by Commission Directive 98/15/CEE, approved on February the 27th 1998 (TARU Directive).
- Council Directive 91/676/CEE, approved on December the 12th 1991, concerning the protection of waters against pollution originating from nitrates used in agriculture.
- European Parliament and Council Directive 2000/60/CEE, enacted on October the 23rd 2000, whereby a Community action framework is established within the scope of water policy. Amended by the following ruling: European Parliament and Council Decision Nr. 2455/2001/CEE, enacted on November the 20th 2001.

Directives on the environmental assessment of projects, plans and programmes.

- Council Directive 85/337/CEE, approved on June the 27th 1985, concerning the assessment of the repercussions of certain public and private projects on the environment, as amended by Council Directive 97/11/CEE approved on March the 3rd 1997.
- European Parliament and Council Directive 2001/42/CEE concerning the effects of certain plans and programmes on the environment.

Communiqués by the European Commission.

- Communiqué by the European Communities Commission on matters pertaining to biodiversity, sustainable agriculture and wetlands.
- Communiqué from the Commission to the Council, the European Parliament, the Social and Economic Committee and the Regions Committee, issued on January the 27th 1999: Guidelines for a sustainable agriculture.
- Communiqué from the Commission to the Council and the European Parliament on the rational use and conservation of wetlands (COM (1994) 644)
- Communiqué from the Commission, issued on March the 27th 2001, on action plans concerning biodiversity in the fields of the conservation of natural resources, agriculture, fishing and co - operation towards development and economic co - operation.

Community Regulations.

- Regulations on Agro - Environmental and Rural Development Measures concerning the amendment of the Community Agricultural Policy.

SPANISH REGULATORY SCHEME

Regulatory Scheme on Tourism.

- Act 197/1963, enacted on December the 28th, on Centres and Areas of Tourist Interest to the Nation.

Regulatory Scheme on Coasts.

- Act 22/88, enacted on July the 28th, on Coasts.

Regulatory Scheme on Natural Areas, Protected Wetlands and Wild Flora and Fauna.

- Act 4/89, enacted on March the 27th , on Conservation of Natural Areas and Wild Flora and Fauna. Amended by Act 40/97 and Act 41/97, enacted on November the 5th, and by Act 53/2002, enacted on December the 30th, on Tax, Administrative and Social Measures.
- Directive approved on November the 4th 1994 by the Office of the Deputy Minister, whereby the publication is ordered of the Council of Ministers' Agreement reached on July the 15th 1994, whereby the inclusion is authorized, among others, of the Mar Menor, in the Ramsar Agreement list on wetlands of International Significance, specially as Aquatic Bird Habitats (Ramsar, February the 2nd 1971) (BORM Nr. 273, 15.11.94).

Regulatory Scheme on Marine Reserves.

- Establishment of the Cabo de Palos - Islas Hormigas Marine Reserve by Ministerial Order approved on June the 22nd 1995 (BOE Nr. 161, July the 7th).
- Directive approved on January the 15th 2002, whereby the specific co - operation agreement between the Ministry of Agriculture, Fishing and Food and the Department of Agriculture, Water Resources and the Environment of the Self - Governing Region of Murcia, concerning the shared management of the marine reserve of the Cabo de Palos - Islas Hormigas area for the 2002 fiscal year, is published (BORM Nr. 29, 04.02.02).

Regulatory Scheme on Water Resources.

- Royal Order in Council 11/95, approved on December the 28th, whereby rules are laid down applicable to the treatment of urban sewage.

REGULATORY SCHEME OF THE MURCIA SELF - GOVERNING REGION

- Regulatory scheme on the environment, sensitive areas and the assessment of environmental impact.
- Decree 7/1993, approved on March the 23rd, on measures aimed at the protection of inland - water ecosystems.
- Act 1/1995, enacted on March the 8th, on the Protection of the Environment in the Region of Murcia. Amended by Act 10/1995, enacted on April the de 24th.

Regulatory scheme on natural protected areas, territorial regulation, land and town - planning.

General Rules

- Act 4/1992, enacted on July the 30th, on the Regulation and Protection of the Territory in the Region of Murcia.
- Act 1/2001, enacted on April the 24th , on the Use of Land in the Region of Murcia (BORM Nr. 113, May the 17th 2001). Amended by Act 2/2002, enacted on April the 24th, on the Use of Land in the Region of Murcia (BORM Nr 128, June the 4th 2002).

Specific Rules.

- Directive from the Minister of Territorial Policy and Public Works, approved on May the 24th 1985, whereby final approval is given to the Special Protection Plan of the San Pedro del

[10] The analysis of the regional nature conservation policy is dealt with in detail in paragraph 1.5.5.

Pinatar Salt Marshes, reserve and beaches of La Llana and Mojón, in the municipal areas of San Pedro del Pinatar and San Javier.

- Directive from the Minister of Territorial Policy and Public Works, approved on June the 5th 1985, whereby final approval is given to the Special Protection Plan of the Sierra de Carrascoy and El Puerto (Municipalities of Murcia, Alhama de Murcia and Fuente Álamo).
- Directive from the Minister of Territorial Policy and Public Works, approved on March the 21st 1987, whereby final approval is given to the Special Protection Plan of the Calblanque Natural Area.
- Directive approved on September the 22nd 1993 by the Environment and Nature Regional Agency, whereby the commencement is approved of the preparation procedure of certain Natural Resources Regulation Plans. It includes, among others, the following natural areas: Carrascoy and El Valle; Salt Marshes and Sandy Grounds of San Pedro del Pinatar; Calblanque, Monte de las Cenizas and Peña del Águila; Sierra de la Muela and Cabo Tiñoso; Mediterranean coast islands and islets; Cabezo Gordo and Mar Menor Open Areas and Islands.
- Decree 44/1995, approved on May the 26th, whereby the Plan for the Regulation of Natural Resources in the Salt Marshes and Sandy Grounds of San Pedro del Pinatar is approved.
- Decree 44/1995, approved on May the 26th, whereby the Plan for the Regulation of Natural Resources in Calblanque, Monte de las Cenizas and Peña del Águila is approved.
- Order approved on August the 31st 1998, whereby initial approval is given to the Plan for the Regulation of Natural Resources in the Ajauque and Rambla Salada Wetland.
- Order approved on December the 29th 1998, whereby initial approval is given to the Plan for the Regulation of Natural Resources in the Guadalentín Salt Marshes.
- Order approved on December the 29th 1998, whereby initial approval is given to the Plan for the Regulation of Natural Resources in the Mar Menor Open Areas and Islands and in Cabezo Gordo.
- Announcement published on October the 29th 2001 whereby the Plan is publicized for the Regulation of Natural Resources in the Guadalentín Salt Marshes, in the wording suggested by the Directorate General of the Natural Environment following the analysis of the allegations made to the text initially approved by the December the 29th 1998 Order.
- Order approved on June the 12th 2003 by the Department of Agriculture, Water Resources and the Environment, whereby the restart is agreed of the preparation and approval procedure of the plan for the Regulation of Natural Resources in the Mar Menor Open Areas and Islands, Guadalentín Salt Marshes and the Ajauque and Rambla Salada Wetland.

Regulatory scheme on the protection of inland areas, and sea fishing reserves.

- Decree 7/1993, approved on May the 26th, whereby measures for the protection of the inland water ecosystems are laid down.
- Decree 15/1995, approved on March the 31st. Declaration of the area between Cabo de Palos and Islas Hormigas as a marine reserve of interest to fishing.
- Directive approved on May the 12th 1999, by the Directorate General of Fishing Resources, whereby the co - operation framework agreement between the Ministry of Agriculture, Fishing and Food and the Department of Agriculture, Water Resources and the Environment of the Region of Murcia, concerning the shared management of the marine reserve of the Cabo de Palos - Islas Hormigas area, is made public.
- Order approved on April the 7th 2000 by the Department of Agriculture, Water Resources and the Environment, whereby the use of authorized fishing methods in the Cabo de Palos - Islas Hormigas marine reserve is regulated.

- Order approved on July the 19th 2001 by the Department of Agriculture, Water Resources and the Environment, whereby the practice of underwater activities inside the Cabo de Palos - Islas Hormigas marine reserve is regulated. (BORM Nr. 174, July the 28th 2001).
- Decree 91/1984 approved on August the 2nd by the Department of Agriculture, Stockbreeding and Fishing, whereby the Rules and Regulations are approved for the practice of Fishing in the Mar Menor, as modified by Decree Nr. 60/1986, approved on July the 10th , and Decree Nr. 36/1987, approved on May the 28th.

Regulatory scheme on wild flora and fauna and areas for the protection of wild fauna.

- Act 7/1995, enacted in April the 21st , on Wild Fauna, Hunting and River Fishing, as amended by Act 11/1995. Paragraph 2 of Article 22, through reference to Annex II of the Act, includes the first locations that make up the Wild Fauna Protection Area Networks, the delimitation still being pending of the geographical boundaries of the said locations, among others, the Mar Menor and associated wetlands; Islas Hormigas; Isla Grosa; Cabezo Gordo; Sierras of Escalona and Altaona; and Cabo Tiñoso and Sierra de la Muela (Cartagena).
- Decree 50/2003, approved on May the 30th, whereby the Regional Catalogue is created of Wild Protected Flora of the Region of Murcia, and rules are issued for the exploitation of different forestal species.

Regulatory scheme on water resources.

- Order approved on June the 20th 2001, whereby the Mar Menor lagoon is declared a “sensitive area”, pursuant to the Royal Order in Council 11/95, approved on December the 28th , whereby the rules applicable to the treatment of urban sewage are established.
- Order approved on December the 20th 2001, whereby areas exposed to pollution by nitrates originating from agricultural sources in the Self - Governing Region of Murcia, are so designated.
- Order approved on December the 21st 2001, whereby an Area exposed to pollution by nitrates originating from agricultural activity is designated as such.

Regulatory scheme on the designation and classification of areas included in the Natura 2000 European Network.

Sites of Community Importance (SCI) proposed pursuant to Directive 92/43/CEE (Habitats).

- Directive approved on July the 28th 2000 whereby the publication is ordered of the decision by the Regional Cabinet on the designation of spots of interest to the community in the Region of Murcia. Among others, the following are included: Salt Marshes and Sandy Grounds of San Pedro del Pinatar; Calblanque, Monte de las Cenizas and Peña del Águila; Carrascoy and El Valle; Mar Menor Open Areas and Islands; Mediterranean coast islands and islets; Cabezo Gordo; Cabezos del Pericón; and Sierra de las Victorias.

Special Protected Area (SPA) classified pursuant to Directive 79/409/CEE (Birds).

- Directive approved on October the 13th 1998. The Salt Marshes and Sandy Grounds of San Pedro del Pinatar are classified as a Special Zone for the Protection of Birds.
- Directive approved on March the 30th 2000 whereby the decision taken by the Regional Cabinet of the Self - Governing Region of Murcia on March the 23rd 2000 is made public, whereby the Isla Grosa is designated a Special Zone for the Protection of Birds.
- Directive approved on October the 11th 2000 whereby the decision taken by the Regional Cabinet of the Self - Governing Region of Murcia on October the 6th 2000, is made public, whereby the Isla de Hormigas (Cartagena) area is designated a Special Zone for the Protection of Birds.
- Directive approved on May the 8th 2001 whereby the decision taken by the Regional Cabinet on March the 30th 2001 is made public, whereby among others, La Muela and Cabo Tiñoso;

Mar Menor; Monte El Valle and the Sierras of Altaona and Escalona are designated Special Zones for the Protection of Birds.

2. PROPOSAL CONCERNING THE MAR MENOR AND ITS AREA OF INFLUENCE AS A CAMP AREA

2.1. GEOGRAPHICAL CONTEXT AND SELECTION CRITERIA

2.1.1. The Region of Murcia

The Region of Murcia is located in the South - East of the Iberian Peninsula. It covers a total area of 11,314 Sq. Km and is situated right in the Mediterranean Arc.

The region is characterized for having a semi - arid Mediterranean climate, with an annual rainfall below 350 mm, even though the more mountainous areas act as "climatic islands" and reach 500 mm per year. The high variability of precipitations must be highlighted, it being common the occurrence of heavy rains that may result in important freshets and flooding. The wettest periods do coincide with the springtime and, above all, the autumn, separated by an intensely dry summer. Temperatures are in keeping with the Mediterranean model, with hot summers when the 40º C - mark is usually surpassed, and mild and short winters. The annual average ranges between 16º and 19º. Average insolation is above 2,800 hours per year.

The region is within the domain of the Baetic Mountain Ranges, and includes a rugged territory in which mountain ranges alternate with valleys, large depressions and plains. The outline of the Murcia coastline, more than 170 Kilometres in length, is characterized by cliffed and rocky areas, alternating with small beaches and coves.

There is a wide environmental variety, with a mixture of European and Northern African influences. One of the most characteristic features of the landscape in the Region of Murcia is the spatial distribution in a mosaic pattern. There is a contrast between mountains and valleys; the continuously flowing rivers and the temporal streams occasionally carrying water; the cliffed coastline and the large sedimentary beaches. Such a landscape wealth is determined not only by geomorphological diversity but also by the extreme variations in the physical features, which impose the conditions exerting an influence on both the presence of the different species and their organization and structuring into communities. Due to their uniqueness, the arid landscapes being represented in the so - called "badlands", stand out. Other unique environment is the hyper - saline coastal lagoon known as the Mar Menor.

2.1.2 The CAMP's geographical area

The littoral area of the Region of Murcia covers an extension of 2,210 Sq. Km., amounting to 19.5% of the region's total area. Within this scope, the area being the subject matter of this proposal, called "Mar Menor Lagoon and its Area of Influence", would include an extension of approximately 1,507 Sq. Km., 1,250 of which belong to the land area, amounting to 56% of the regional littoral area and to 11% of the region's territory. The area likewise includes about 257 Sq. Km. of sea - water, 135 of which belong to the Mar Menor lagoon.

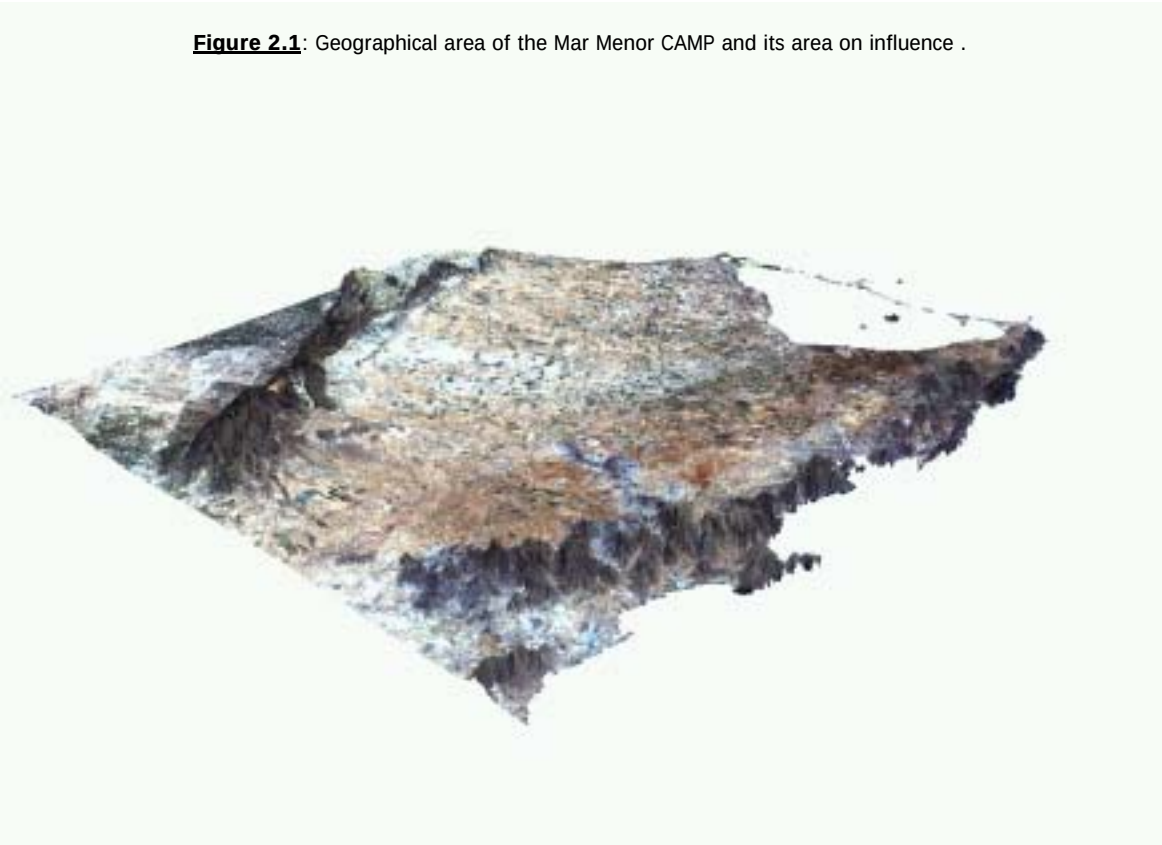
The largest part of the area being the subject matter of the proposal occupies a wide quaternary plain, triangular in shape, spreading in a West - East direction, located to the South - East of the Region of Murcia, in the domain of the Baetic Mountain Ranges, and whose lagoon is the emptying cask of the whole of the hydrographical basin of the Campo de Cartagena, which includes a series of water courses having an intermittent and torrential regime, among which the temporal stream of Albujón deserves to be mentioned. This basin is separated, in its Northern dividing line, from the River Segura basin by the heights created by the alignment of the sierras of Carrascoy - El Puerto, Villares, Columbares, Altaona and Escalona. The area is bounded to the North by the province of Alicante, and from there, in a southerly direction towards its meridional boundary, follows the coastline of the Mar Menor littoral lagoon encompassing an part of the Mediterranean's underwater littoral strip laying in front of it and between Cabo de Palos and Cabo Negrete, which includes the Islas Hormigas, Grosa and Farallón. From this point, the southern alignment of the sierras of Cartagena and La Unión

reaches the western limit in the heights of the Sierra del Algarrobo and the head of the plain stretching between the latter and the aforementioned Sierra de Carrascoy (See cartographic Annex).

The said geographical territory encompasses, partially or in their entirety, the coastal municipalities of San Pedro del Pinatar, San Javier, Los Alcázares and Cartagena while, inland, the towns of Fuente Álamo, Torre Pacheco, Murcia and La Unión are to be found.

The Mar Menor, the area's geographical point of reference, is the largest hyper - saline coastal lagoon in the western Mediterranean as well as the most important wetland in the Region of Murcia. Having a low coastal morphology and a maximum depth of seven metres, it is separated from the Mediterranean Sea by a 22 - kilometre long sandy barrier, La Manga (or "Sleeve"), through which run a series of channels connecting the sea and the lagoon.

Figure 2.1: Geographical area of the Mar Menor CAMP and its area on influence .



2.1.3. Criteria for the selection of the CAMP area being the subject matter of the proposal

The selection of the area where the project is to be put into effect, has been based upon a series of appropriate criteria assessed in a simultaneous manner, so that the most can be made of the integration of territorial repercussions arising from environmental problems into the actions undertaken with a view to correcting and preventing their causes:

- It has a high degree of territorial cohesion and geographical uniformity by reason of the limited barriers imposed by the structure of the physical environment, due to the unitary configuration of the CAMP area from the standpoint of the hydrographical basin. The definition of the area under consideration has been based, to a large extent, upon this particular dimension, for an attempt is made to integrate the management of the coastal strip into that of the land environment being directly linked, through the hydrographical network, with its ecological processes. This coincides with the ICAM concept, whose aim is achieving a single management of hydrological resources and the coastal area.
- The awareness of a social, cultural and institutional identity historically differentiated as well as the existence of string interrelationships among the economic activities carried out.

- The area is deemed to be consistent with the territorial extent of the environmental problems, their causes and the efficiency of measures leading to their solution. Such problems do share aspects concerning the extent, intensity, direction, interrelationship and homogeneousness of the social, economic and environmental phenomena involved in the diagnosis, as well as the feasibility of the measures taken to solve them from a territorial standpoint.

The inclusion has been considered advisable of the coastal strip, of an extension of about 1,260 hectares, separating Cabo de Palos from Cabo Negrete, for it includes part of the coast adjoining the SPAMI's marine area, a stretch of land needed for the management of its conservation .

2.2. ENVIRONMENTAL CONTEXT OF THE CAMP AREA

2.2.1. Description

Climate

The sub - desertic Mediterranean climate (warm and dry) is the prevailing one, with periods of drought which coincide with the highest temperatures, and precipitations characterized by a wide interannual variability. The low rainfall and the high temperatures are translated into an intense aridity, a characteristic feature of the area.

Geomorphology

The sierras surrounding the area are those of Cartagena, Carrascoy - El Valle and Columbares, which are a part of the Baetic mountain ranges and have great geological complexity. From the geomorphological and landscape point of view, the soft sloping quaternary plain (Campo de Cartagena) stands out, as do the heights (or "cabezos") of a different nature and great geological interest.

Thus, Cabezo Gordo is made up of materials from metamorphic series dating back to the Triassic, having a marmoreal series of immense strength, calcareous in the main, supported on micaceous slates. In the Cabezos of San Ginés and El Sabinar a carbonated limestone stretch outcrops, as phyllites and quartzites do in some areas , while El Carmolí and the Mar Menor islands have a volcanic origin, with outcrops of hypersthene andesites subjected to a low degree of weather action.

The lagoon coast is low, with lacustrine beaches not all of which are sandy. Other aspect of interest is the existence of saltmarsh and saltpans created at the mouth of the temporal streams and in inland depressions and delimited by narrow dune systems.

The sandy bar of La Manga originates from tombolo - formation processes on the Pliocene plinth and the volcanic formations existing in the area. The dune systems typical of the area have been seriously altered by urban development, although the fossil and current dune systems are well represented in the Calblanque, Monte de las Cenizas and Peña del Águila Regional Park, which skirt sandy beaches and delimit the depression where the El Rasall salt marshes are located.

Hydrological System

The Mar Menor drainage network is made up of temporal streams and river beds flowing in a discontinuous manner, in space as well as in time. The main temporal streams are: Los Alcázares, Miranda, Beal, Albujón, Carrasquilla and Siete Higueras. In the Campo de Cartagena six aquifers stand out being determined by the materials and the age when they appear. While the aquifer associated with the sierra de Cartagena, stretches throughout the southern coastline up to Cabo de Palos.

Soils

The area's geomorphological and climatic characteristics determine a wide pedological diversity. Thus, in the mountain areas, on limestones and dolomites, soils have a gradient ranging from the deepest and the most developed to low - profile lithosols.

On the other hand, a poor degree of development is the characteristic of both the ones formed on malms, extraordinarily limy, and those formed on volcanic outcrops having a limy - clayish - sandy

texture and a low calcium carbonate content, as well as those from the littoral and pre - littoral metamorphic sierras.

Alluvial sediment soils are, as a rule, scarcely evolved and have an anthropic surface horizon, since, due to their limy - sandy texture, they have traditionally been put to an agricultural use.

The red soils found in the Campo de Cartagena, of a great scientific interest, are worthy of mention, for their formation did take place in climatic conditions quite different from the ones prevailing nowadays.

Environmental units

The sierras and mountain landmarks

The sierras

- The pre - littoral sierras of *Carrascoy, El Valle* and *Columbares* constitute the functional and landscape boundaries of the Campo de Cartagena and Mar Menor district and have contributed, due to its borderline character, throughout history to enriching this district with unique features that differentiate it form the rest of the regional territory.

  These medium - height sierras are characterized by a rugged orography and steep slopes. The lithological substrata are quite diverse and are revealed in the slopes, summits and crags. The wooded stratum is made up of pine forest formations, together with patches, in a good or not so good state of conservation, of what in the past must have been large Mediterranean forests, beneath which bushes develop: mastic tree (*Pistacia lentiscus*), blackthorn (*Rhamnus lycioides*), palmetto (*Chamaerops humilis*) and large fescue grass formations (*Brachypodium retusum*). In the sunny slopes the thermo - Mediterranean thickets grow: fields of thyme, anthyllis, esparto grass, etc. The crags are home to a substantial number of endemic and Iberian - African species, just as the communities growing on chalk substrata. In certain enclaves of these sierras unirrigated crops, almond tree in the main, still persists. Among the fauna associated with this environment, six species of birds of prey included in Annex I to Directive 79/409 have to be mentioned, as must seven species of bats included in Annex II to Directive 92/43.

  The important role played by these sierras as Cartagena's second line of defence, is brought to light in the references to fortifications or *castella* dating back to Byzantine times, and to uncompleted fortifications dating back to the Twelfth and the Thirteenth centuries in the Puerto de la Cadena.

- *The Sierra de Cartagena* is the southern boundary of the CAMP area which, in the Calblanque Regional Park, Monte de las Cenizas and Peña del Águila, reaches the sea in the shape of cliffed coast, where small sandy or pebbly coves are interspersed, or else gets away from the coast diversifying the landscape and creating an inland depression, traditionally cultivated and where salt works still remain active. Dune strings, fossil dunes and wide sandy beaches stretch in the vicinity of the sea.

  This sierra is a less arid strip of land, with more developed and thicker vegetation than is the case in the rest of the Region's littoral mountain areas, which, together with the Cabezo del Sabinar is the one and only European distribution point of the Moorish savine (*Tetraclinis articulata*). The sierra has dense thickets with bushes in the shady slopes, occasionally with a tree canopy where the Aleppo pine (*Pinus halepensis*) is predominant; the most representative species are: fescue grass (*Brachypodium retusum*), palmetto (*Chamaerops humilis*), kermes oak (*Quercus coccifera*), mastic tree (*Pistacia lentiscus*), wild olive tree (*Olea europea* var. s*ylvestris*), etc. In the slopes directly opening out into the sea, the anthyllis (*Anthyllis citisoides*), the esparto grass (*Stipa tenacissima*) and the rockrose (*Cistus clusii*) are predominant, along with the rosemary (*Rosmarinus officinalis*) and the thyme (*Thymus hyemalis*); thorny species of Iberian - African distribution are also abundant: *Periploca angutifolia*, boxthorn (*Maytenus senegalensis*), furze (*Calicotome intermedia*), etc. Other environments typical of the area are the crags, such as the calcareous walls of the Cabezo de la Fuente (Calblanque Regional Park, Monte de las Cenizas and Peña del Águila).

With regard to the fauna communities, in addition to the species associated with pine forests and bushes, the rupicolous ones such as the eagle owl and the peregrine falcon, included in Annex I to Directive 79/409/CEE, are worthy of mention .

This sierra is spattered with prehistoric settlements dating back to the upper Palaeolithic (Cueva de los Mejillones and the shallow caves of los Dentoles in Calblanque) and to the Neolithic (Cuevas de los Pájaros).

The mining industry in this sierra goes back to 2,000 years B.C. with the extraction of copper and tin, and that of mercury, zinc, silver, iron and lead during the periods of Phoenician, Carthaginian and Roman rule. In the Nineteenth Century the sierra undergoes a mining - metallurgic reactivation process, and the area remains highly active until the crisis of the second half of the Twentieth Century. Form the mid - Twentieth Century on, open - cast mining is introduced and remains in use until 1990. It has abundant mining archaeological remains which, in conjunction with the colours, alluvia and ponds left by open - cast mining make up a peculiar landscape.

The mountain landmarks

The “cabezos” are structural constituent elements of the Campo de Cartagena landscape and among them the remains of the oldest settlers in the area are to be found. They include important natural and cultural values and, accordingly, have been given protection status (Protected Landscape). In them a large number of habitats included in Directive 92/44CEE have been identified, which is why they have been proposed to be designated as Spots of Interest to the Community (LIC). In addition, they are considered Spots of Geological Interest (LIG).

El Cabezo Gordo (Protected Landscape) is a unique point of reference in the historical and landscape memory of the Campo de Cartagena. It stands out as an enclave of great visual quality in the large surrounding plain. In its North - Eastern slope it creates an important visual impact resulting form the mining exploitations. It is the distribution borderline for Iberian - African species such as the *Periploca laevigata* or the *Caralluma europaea*. Among the animal species, the following Chiroptera stand out: *Miniopterus schreibersii, Myotis capacinii, Myotis myotis, Rhinolophus euryale and Rhinolophus ferrumequinum*, included in Annex II to Directive 92/43.

The latest research carried out in Cabezo Gordo has proved that it harbours a first - rate palaeontological site: the *Sima de las Palomas*. This chasm includes Neanderthal’s remains, together with other human remains older and still to be definitely identified. Their scientific importance can be rated as exceptional.

The cabezos of *El Sabinar and San Ginés* (Protected Landscape. Mar Menor Open Areas and Islands) constitute two landscape landmarks being a part of the Sierra de Cartagena, standing out in the southern plain of the Mar Menor Basin. Between them there is a good representation of communities of “cornical”, palmetto and thyme fields. The important formations of *Tetraclinis articulata* at El Sabinar and the “cornicales” with *Maytenus senegalensis* at San Ginés.

The latter contains, in the *Cueva Victoria* site, abundant palaeontological and anthropological remains of huge significance due to the presence of Pleistocene fauna, in addition to bone fragments belonging to the Homo Genus leading to the establishment of links between this site and the complex problems of the beginning of Euro - Asian population. At the cabezo’s foot, in the *Monte Miral* area, there exists a site corresponding to a settlement from the Upper Palaeolithic and the San Ginés de la Jara Monastery where remains have been found from the Roman Age, as well as hermitages dating back to the Middle Ages.

The *Cabezo del Carmolí* (Protected Landscape. Mar Menor Open Areas and Islands), on the other hand, is the most outstanding elevation in the Mar Menor’s surrounding area; of a volcanic origin, it has well - preserved communities of thicket with palmetto (*Chamaerops humilis*) or with *Zyziphus lotus*, depending on its slopes’ orientation. The rocks are covered with lichens and in its cracks and cavities there appear different species of ferns.

The temporal streams

The Campo de Cartagena temporal streams are characterized by the occurrence of strong flat being the result of torrential rains. But, as a rule, the lack of hydrological connection between the stream’

bodies of water is one of their main hydrological characteristics. The vegetation growing in the temporal stream is determined by soil conditions and the degree of humidity, even though the majority of river beds remain dry for the greatest part of the year. The higher humidity in the substratum favours the growth of hydrophilic vegetation, patches of varying density being created among which the following species stand out: *Tamarix* sp., oleander (*Nerium oleander*), bulrush (*Juncus* sp.), reed (*Arundo donax*), ditch reed (*Phragmites australis*), myrtle (*Mirtus comunis*) or immortelle (*Limonium* sp.).

The Campo de Cartagena

This large alluvial plain has been linked, over the centuries, with the cultivation of unirrigated crops, as proved by the small Cabezo de la Cruz sites belonging to the "El Argar" culture, in the vicinity of La Aljorra.

In Carthaginian and Roman times, the traditional Mediterranean crops are introduced in the Campo de Cartagena: olive tree, fig tree, palm tree, pomegranate tree and barley; writings from that time also mention artichokes and esparto grass. There is evidence of the existence of Roman villas in the area, such as the ones at El Salar and Los Alcázares.

Under Moorish rule, several farmhouses did appear, many of which were built on villas from the late Roman period and there was a proliferation of *"rahales"* or granges, consisting of several houses and other buildings and facilities (a reservoir or well to draw water by means of water wheels, a small orchard and, occasionally, a tower), and small farming communities were established such as the ones in Los Alcázares and San Ginés de la Jara. This fact is a result of the richness of pastures and game, and of the possibility of cultivating areas either with underground water or thanks to the utilization of water from the temporal stream by means of sluices open in irrigation ditches, ponds and irrigation trenches.

Along with the natural vegetation made up of mastic trees, thickets, swamplands and savins, cereals (wheat and barley), almond trees, olives trees, carob trees and grapevines are grown in unirrigated land. Cultivation in the irrigated - land enclaves is devoted to fig trees, pomegranate trees, apricot trees, jujube tress, wheat, grapevine, olive trees and legumes.

During the Thirteen Century the Christian army laid waste to the Campo de Cartagena, the area being, accordingly, quickly depopulated.

From late Fifteenth Century on, there is an increase in livestock and transhumance is introduced. This fact, in conjunction with the danger of piratical raids from the coastline, results in the majority of farms in the Campo de Cartagena being left untilled in the first half of the Sixteenth Century. If and when landowners decide to have their lands cultivated, they usually build defence towers.

In the second half of the Sixteenth Century the Campo de Cartagena hamlet network is consolidated and stockbreeding reaches its peak being carried out according to Mesta rules.

In the Seventeenth and Eighteenth Centuries, the Campo de Cartagena towns and hermitages become consolidated and the breaking up of new ground increases for the growing of wheat, barley, grapevine and barilla; local stockbreeding is given a boost.

Throughout the Twentieth Century, the Campo de Cartagena has undergone an intense landscape transformation as a result of the introduction of external water resources, which greatly increased the extent of farming areas through irrigated crops and the development of intensive, or industrialized, agriculture, although relict areas of unirrigated land or steppe can still be found.

Standing out among natural vegetation are the littoral steppes, a vegetal formation where the matweed (*Lygeum spartum*) is predominant; large extensions of Moorish thyme (*Frankenia corymbosa*) and immortelle (*Limonium sp*). The predominant winged fauna species are the calandra (*Melanocorypha calandra*), the salt marsh lark (*Calandrella rufescens*) or the largest - size species to be found in the area, the stone curlew (*Burhinus oedicnemus*).

The new farming has introduced a new element into the landscape, namely, the irrigation reservoirs. Such elements are attracting species linked with the aquatic environment, such as the viperine adder (*Natrix maura*) or birds such as the lesser egret (*Egretta garzetta*).

Elements related to agricultural uses of the land, in the main, different buildings still being used for farming, the water wheels and other elements related to the utilization of water, are nowadays an important heritage wealth of the Campo de Cartagena. These witness - structures do make it easier to understand the activities that the area inhabitants used to carry out, maintaining at the same time the condition of natural and ethnographic resources of great interest when it comes to appraising the value of the CAMP area.

Thus, scattered throughout the Campo de Cartagena, windmills rise which constitute one of its identification signs. Of Greek or Persian origin, depending on which authorities we rely on, its diffusion is something we owe to Islamic culture. The most numerous among them are the ones utilized to obtain water for agricultural uses; in addition, flouring mills were also built. At the beginning of the Twentieth Century the total number of mills included in a register made at the time was three hundred; as of today, there are less than one hundred. Over the last few years a process has been set in motion for the renovation of these landscape landmarks.

The Wetlands

The wetlands are one of the most unique landscape constituent elements of the Biosphere, specially so in those regions, such as Murcia, where aridity is the prevailing ecological factor.

The types of wetlands being represented in the area match, to a greater or a lesser extent, a general model of littoral seascapes laying on coasts of little or no slope. The San Pedro del Pinatar[11], Marchamalo and El Rasall wetlands are organised around salt works either in operation or half - abandoned.

The area's littoral wetlands do harbour different plant communities basically distributed according to the depth of the phreatic level, which, in turn, determines the concentration of soluble salts. In the areas experiencing temporary flooding, the vegetation is made up of glasswort and barilla, species such as *Sarcocornia fruticosa* and *Arthrocnemun glaucum* being the prevailing ones, accompanied by others such as soda ash (*Suaeda* sp.) or Moorish thyme (*Frankenia corymbosa*). In the most saline areas, species belonging to the *Limonium* genus are predominant, whereas in the sweet - water areas ditch reeds (*Phragmites*) prevail, which due to their thickness and inaccessibility provide shelter to numerous bird species, acting as breeding and feeding grounds or as sleeping grounds. One of the spots having a special diversity is the intersection of the ditch reed and salt marsh ecosystems (ecotone), for in it are present species adjusted to both ecosystems. They are home to large concentrations of wintering aquatic birds, but there stand out, above all, for the size of the breeding populations, certain species: *Charadrius alexandrinus*, *Sterna albifrons*, avocet (R*ecurvirostra avosetta*) and *Tadorna tadorna* which stay in the wetlands almost throughout the year. At the end of the summer the arrival can be seen of masses of adult individuals of the most spectacular of species, the pink flamingo (*Phoenicopterus ruber*), right after the breeding time. Besides, they are the most important spots for the conservation of the *Lebias ibera*, a species threatened by extinction according to the National Catalogue of Threatened Species.

The littoral crypto - wetlands not associated with drainage systems are likewise well represented, the Lo Poyo salt marsh and the El Carmolí seascape, having steppe - like features.

The Sandy Grounds

The coastal dunes and sandy grounds are considered one of the scarce and threatened landscapes, such as the El Coterillo dunes (in the San Pedro del Pinatar Salt Marshes and Sandy Grounds Regional Park), which are a small sample of the ancient, large sandy grounds of La Manga. While in the area of Las Encañizadas (in the same Regional Park) an inter - tidal plain is formed whose importance lies in the fact that such a habitat is quite infrequent in the Mediterranean Region.

The plant communities linked with the coastal dune and sandy - ground systems are adapted to the harsh conditions of an adverse environment. The instability of the substratum, the variability and fluctuation of the level of flooding and wind erosion, in conjunction with the deficiency of nutrients, are some of the prevailing factors in this environment. In the areas closest to the sea, protected from

[11] Cavero L. 1998. El Parque Regional de las Salinas y Arenales de San Pedro del Pinatar. Consejería de Medio Ambiente, Agricultura y Agua (Eds). Murcia. 127 pp

the direct action of the wind, the *Elymus farctus* pasturelands or the marine white lily (*Pancratium maritimum*) are predominant; standing out at the dune tops are the beach grass (*Ammophila arenaria* subsp. *arundinacea*) and the *Medicago marino*. The sand stabilization area towards the interior enables the colonization by low thickets (*Helianthemum marminorense*, *Helicrysum decumbens*, and *Teucrium dunenses*). There appear, besides, some specimens of savine (*Juniperus phoenicea* subsp *lycia*), mastic tree (*Pistacia lentiscus*) and hawthorn (*Rhamnus oleoides angustifolia*). The beach and dune fauna includes the *Arenaria interpres*, in areas of abundance of *Posidonia oceánica*, where it looks for food, the *Calidris alba* and the Iberian seps (*Chalcides bedriagai*). The sandy grounds that have been consolidated with pine forest, make it possible for some birds, mammals and reptiles to find refuge. Birds typical of steppe environments such as the stone curlew (*Burhinus oedicnemus*) or the partridge (*Perdix perdix*), can also be seen. Also nocturnal birds of prey such as the common little owl (*Athene noctua*), the common barn owl (*Tyto alba*) or the field owl (*Asio flammeus*) also find in the pine forest their hunting ground and their shelter.

The lagoon and the marine strip

The lagoon [12, 13]

The Mar Menor and its littoral strip make up the most unique landscape unit of whole of the CAMP area. It is a closed hyper - saline coastal lagoon covering an area of 135 Sq. Km., located in the alluvial end of the Campo de Cartagena. It is separated from the Mediterranean by a sandy bar 22 Km. in length and varying in width (La Manga), and it has an average depth of 4 m, the greatest being 7 m. Inside it there appear five volcanic islands which stand out as landscape landmarks of outstanding visual quality.

With regard to hydrodynamics, the prevailing currents are created by the water coming in from the Mediterranean either through natural or artificial connections (golas), where the incoming water prevails over the outgoing one. Sediment movements are scarce, a fact which prevents the formation of true beaches, in favour of sand banks associated with sandy grounds and dune systems. Besides, it is characterized by an important thermal stress, water temperature showing an annual interval ranging from 10 to 30º C, although in the areas closest to the coastline more extreme temperatures can be reached. Salinity ranges from 42 to 47 ups. Although there is no permanent intake of sweet water, over the last few decades a tendency towards eutrophication has been perceived as a result of the pollution caused by agricultural - drainage water and sewage from the Campo de Cartagena.

Lagoon conditions are rigorous, with wide oscillations of water temperature, high salinity and insolation, low hydro - dynamism, low depth and scarce presence of rocky substratum, along with a lack of shady areas. All these characteristics determine the configuration of lagoon communities and species. By way of example, the rocky communities determined by the existence of a certain depth, as well as dark ("esciáfilas") communities are not present. However, photophilous communities associated with soft bottoms are predominant. The most abundant vegetation is made up of dense turf of the *Caulerpa prolifera* alga acting as an invading species, which has been colonizing in an astounding manner the practical entirety of the lagoon over the last few years, displacing, at the same time the phanerogamous *Cymodocea nosoda,* which in recent times was the structuring factor in the lagoon landscape. Nowadays, the *Caulerpa* appears in certain spots associated with prairies of *Cymodocea nodosa*. In certain shallow and low hydro - dynamism areas there appear lawns of *Zostera noltii* and *Ruppia cirrosa.* The soft bottoms are home to a large amount of small Gasteropoda, among which those belonging to the genus *Bittium sp, Jujubinus sp* or the scavenger *Cíclope neritea* stand out. Scattered through the vegetation we can find sea anemones (*Anemonia sulcata*) or water fleas (*Corophium insidiosum*). There has been over the last few years a large increase in the numbers of nacres (*Pinna nobilis*).

[12] Más, J. 1994. El Mar Menor: Relaciones, diferencias y afinidades entre la laguna costera y el Mar Mediterráneo adyacente. Doctoral Thesis. Universidad Autónoma de Madrid. Madrid

[13] Martínez J. y Esteve M.A. 2003. El papel de las aguas subterráneas en la exportación de nutrientes de origen agrícola hacia la laguna del Mar Menor. In: Fornés, J.M. y Llamas M.R. (eds) *Conflictos entre el desarrollo de las aguas subterráneas y la conservación de los humedales: litoral mediterráneo*. Fundación Marcelino Botín. Madrid. Pp 390.

In the lagoon environment the presence is highly important of stones, shells, etc., for the species typical of hard bottoms colonize the small remains of shells scattered throughout the lagoon, and together with the few hard - substratum areas of some importance, such as the vicinity of the islands, bathing resorts, harbours and artificial jetties, they enable the implantation of species typical of hard substrata, thereby diversifying the landscape. The most characteristic species are *Acetabularia acetabulum*, *Jania rubens* and *Cystoseira compresa*.

Among the most representative members of the ichthyologic fauna we find different strategies: i) Fishes temporarily appearing in the lagoon, such as the *Seriola dumerelii*; ii) Fishes staying in the lagoon throughout their lives such as, *Gobius niger*, or *Syngnathus abaster*) iii) Fishes spending part of their lives at sea and coming into the lagoon for their growth stage or to spawn, such as the eel (*Anguilla anguilla*) or the gilthead (*Sparus aurata*).

In the Mar Menor islands the thicket is predominant, a well - preserved palmetto grove located at Isla Mayor, deserving special mention. The Ciervo and Redonda islands have good “cornicales”, thyme fields and highly interesting formations of *Whitania* and *Lycium intricatum*.

During the winter, the largest part of the ornithological community consists of diving species such as the red - breasted merganser (*Mergus serrator*), the dabchick (*P. cristatus*) and the large cormorant (*Phalacrocórax carbo*); and during the summer, of nesting larids such as the herring gull (*Sterna albifrons*) and the common *Sterna hirundo*.

The marine strip

Within the marine strip included in the CAMP area we can distinguish three large geographical units which are described below.

The first unit, from the region’s borderline to Cabo de Palos, a stretch of coast corresponding to La Manga, is mostly an uninterrupted beach. It coincides with the widest platform area in the Murcia coastline. Occasionally, some stretches of low rocky coast outcrop. In addition, in this area the Isla Grosa and El Farallón, both volcanic in nature, stand out. Within its boundaries lies the largest and best preserved prairie of *Posidonia oceanica* in the Region of Murcia.

The second unit includes the strip extending from Cabo de Palos to Cabo Negrete, a stretch of cliffed coast of variable height, where small coves of different length and width can be seen. In the rocky coast sections there is a strip of cliff and rocky blocks whose shape varies irregularly throughout the stretch. The large number of islets, enabling the diversification of habitats and biocenoses, along with its good state of conservation, give it a great environmental importance.

The last unit, in its submerged section, consists of rocky structures of great verticality, represented in the shoals and islands of the Cabo de Palos - Islas Hormigas Marine Reserve. The uniqueness of this strip lies in the oceanic influence exerted by its communities, the important hydro - dynamism, the quality of its waters, the depth it reaches and, accordingly, the diversification of habitats. There is a significant trophic relationship between the nearby planktonic oceanic communities and the benthonic communities. The latter are communities of a high ecological value and peculiar ecological processes.

In the **rocky coast** sections, according to an in - depth distribution, different biocenoses can be noticed:

i) In the littoral strip there appear biocenoses of supra and middle - coastal rock. The greater or lesser complexity of this strip depends on the degree of emersion and height of the coastline. The area under consideration is characterized by being a prevailingly low coast. Among the species typical of the area are the *Melaraphe sp.* molluscs or the *Risoella verrucosa* or *Nemalion helmintoides* seasonal algae, indicating the high quality of the waters.

ii) In the infra - littoral strip predominate the upper infra - littoral rock biocenoses in a beaten regime, whose structured is made up of *Cystoseira strictae* and where the important formation of micro - reefy Vermetidae (*Dendropoma petreum*) structures stands out, which constitute compact organogenic aggregates, located right at an intermediate sea - level and which acquire a special bio - geographic importance. They are typical of thermophilic areas and only develop to any noticeable extent in the coast of Murcia, Alicante and Almería.

The **permanently submerged seabeds** (infra - coast) show a remarkable gradation determined by the availability of light and hydro - dynamism. We find the infra - littoral rock biocenosis in a calm regime, characterized by *Cystoseira crinitae*. Or the communities of photophilous algae with a great diversity of plant associations dominated by *Cystoseira compresa, Jania rubens, Laurencia obtusa, Halopteris filicina etc.*

In the **rocky enclaves** not being subject to hydro - dynamism and protected from direct illumination there appear the biocenoses typical of semi - dark caverns and corbels, together with the infra - littoral Scyaphilae algae in a calm regime or pre - coralligenous in an excellent state of conservation. Algal species such as *Peyssonnelia sp, Halimenda tuna, Zonaria tournefortii, Flabellia petiolata*, sponges (*Axinella damicornis, Clathrina coriacea, Dysidea fragilis or Ircinia dendroides*), Cnidaria (*Eunicella verrucosa* or *Astroides calicularis*), etc. are common.

The **small caves and overhang** are characterized by the abundance of encrusting coralline and Peisonaelaceae ("peisoneláceas"), constituting habitats favouring the development of concreting formations. As the depth increases, above all in the area of Islas Hormigas and in the Cabo de Palos stretch, these enclaves become more abundant, occupying scantily lit areas.

In the **lower part of the rocky walls**, below a depth of 35 metres, a gradual transition takes place from the infra - coastal to the circa - coastal area, where coralligenous seabeds develop, characterized by the growth of a mixed vegetal - animal coating shade-tolerant ("esciáfilas") algae, soft and incrusting, together with some concretion making invertebrates). In the Hormigas archipelago a complex coralligenous colony grows where different strata can be distinguished, and it acquires a special interest due to its large size and growth: a high and erect stratum created by large gorgonia (*Paramunicea clavata, Eunicella* cavolinii) and arborescent - looking sponges (*Axinella damicornis*, *Spongia agaricina*); an intermediate stratum made up of large colonies of bryozoa (*Cellaria salicornoides, Aldeonella calveti*), sponges, ascidia (*Clavelina dellavallei*), *Parazoanthus axinellae* and polychaetes (*Filograna implexa*); and, finally, a lower stratum made up of calcareous algae (*Polysiphonia elongella, Mesophyllum lichenoides*), bryozoa, sponges and madreporaria.

In the sections where **sedimentary seabeds without vegetation** are predominant, the littoral strip shows biocenosis typical of middle - coastal sands and fine superficial sands accompanied by their typical fauna (*Venerupis aurea, Cerastoderma edule,* and *Cyclope neritea*). In the infra - coastal area, the biocenoses are established in fine homogeneous sands, the majority of which have a terrigenous origin and without any marked muddying. The most conspicuous animals in this area are red mullets (*Mullus surmuletus*) or some echinodermata (*Holothuria tubulosa, Astropecten* sp). Some sandy bottoms are colonized by dense prairies of the phanerogam *Cymodocea nodosa*, which occasionally appears associated with *Caulerpa prolifera* in the first unit of the area. In some spots it is even possible to detect mixed prairies of *C. nodosa* and *Zostera noltii*.

Finally, the biocenosis of the ***Posidonia oceanica meadow*** is preferably established on a sandy bottom, although it can also do it on rocks. The meadow associated with the first unit is characterized for being the widest and largest in the Region of Murcia (approximately 5,000 Hectares), due to the extent of the continental shelf. With an excellent state of conservation, it constitutes one of the most important meadows in the Spanish Levant. The presence of abundant rocky strips has protected it from the destructive action of trawler fishing and retains its lower limit intact. The Calblanque - Cala Reona meadow is in the second unit; it is a large meadow (2,000 Hectares), which occupies a strip up to 4 - kilometre wide. In its western limit the meadow completely disappears as a result of the dumping, which took place over three decades, of mining waste from the Sierra de Cartagena.

The Mediterranean islands

Among the large islands present in the area, the Hormigas archipelago, the Isla Grosa and the Farallón islet stand out.

The Islas Hormigas are the easternmost point of emergence of the dolomitic limestone level. The presence must be mentioned of a nesting colony of *Hidrobates pelagicus melitensis*.

The Isla Grosa and the Farallón islet are outcroppings of volcanic rocks of an indeterminate class. Among its vegetation the *Periploca angustifolia, Whitania frutescens or Lapiedra martinezii* stand out.

The stable presence has been recorded of the Audouin seagull (*Larus audouinii*) in large enough numbers to make it the third most important colony in the world.

There is evidence of human habitation throughout History throughout the Mar Menor coastline and the Mar Menor islands, as shown by the remains of a village in the Las Amoladeras beach and the Monte Blanco settlement in La Manga, dating back to the end of the Neolithic age (between 7,000 and 2,500 years B.C.); the remains of the Bronze Age village in the Calnegre hillock, opposite to the Pino cove; the Iberian hamlet at Los Nietos, the Roman villa at El Castillet, in Cabo de Palos, etc.

The secondary lagoons of the Mar Menor shore (San Pedro del Pinatar, Los Narejos, Lo Poyo, Marchamalo, etc.) are historically representative of the operation of salt works, probably prior to the Roman colonization. Thus, the use for the extraction of salt of the old Patnia lagoons, nowadays the San Pedro del Pinatar salt works, seems to date back to Phoenician times.

Also during Phoenician, Greek and Roman times commercial ports were built in Lo Pagán and in the large islands, evidence of the good navigability conditions and the intense commercial activity carried out in the Mar Menor at the time.

During the Sixteenth and the Seventeenth Centuries, the coast is subjected to numerous attacks preventing the fishing and the salt - works operation activities from being normally carried out and the coastal territory remains unpopulated. Coastal watchtowers are built in Calblanque and El Carmolí, as well as defence towers such as those in Cabo de Palos, El Estacio, Encañizadas and San Pedro del Pinatar.

The first half of the Nineteenth Century marks the beginning of the touristic colonisation of the Mar Menor shore and bathing resorts are built. From then on, the population centres located at the coast become summering centres for the inhabitants of the region's interior. From the Nineteen - Sixties on, this activity undergoes an expansion and real estate developments multiply, whose greatest exponent is La Manga. The urban development of the coastline also spreads through the inner shore of the lagoon and there is a proliferation of marinas throughout the coast. Nowadays the landscape of the Mar Menor coastline and La Manga is deeply marked by this use of the land, although a few enclaves remain free of development, in addition to the Protected Landscape of the Mar Menor Open Areas and Islands and the Calblanque, Monte de las Cenizas and Peña del Águila Regional Parks, plus the San Pedro del Pinatar Salt Marshes and Sandy Grounds .

The salt works of San Pedro del Pinatar, Marchamalo y el Rasall are still in operation and, accordingly, the salt mounds and the salt ponds are a part of the CAMP area landscape. In these salt works, different buildings and architectural elements associated with the salt extraction activity stand out; in particularly the waterwheels which were used to bring the water to the salt ponds (for instance, those of Quintín and La Calcetera in San Pedro del Pinatar, which remained in operation until the Nineteen Fifties), to transfer water from one salt pool to the next (such as the Marchamalo waterwheel whose tower still stands), or else to mill the salt (mills installed between Los Urrutias and Cabo de Palos).

As a seasonal landscape landmark, linked with the tourist activity and related to the therapeutical properties that these sediments are said to posses, the mud baths located in the San Pedro del Pinatar salt ponds are worth mentioning.

2.2.2. Land uses

The uses of land in the municipalities included in the CAMP area are characterized by the predominance of agricultural uses and by the scarcity of forestal areas, located, in the main, in the highlands delimiting the Mar Menor basin. Thus, the area devoted to agriculture amounts to 72% of the total area of these municipalities, a figure above the regional average (54.3%). On the other hand, the percentage of forestal area (22%) is precisely half the regional average (43.0%), as it happens with the wooded forestal areas (12% as against 24% regional average).

Table 2.1: Land uses in the CAMP area on influence .

Municipality	Wooded Forestal	Total forestal	Agricultural	Wetland	Water	Unproductive	Municipal Area (Sq. Km)	Camp area (Sq. Km)
Los Alcázares	0.0%	24.6%	73.4%	0.0%	0.7%	1.3%	19.80	19.80
Cartagena	9.2%	30.7%	59.7%	0.3%	0.2%	9.1%	558.3	298.74
Fuente Álamo	3.5%	17.9%	79.6%	0.0%	0.6%	1.9%	273.5	268.08
Murcia	18.6%	28.0%	65.9%	0.0%	0.4%	5.7%	885.9	358.93
San Javier	0.0%	7.7%	79.2%	0.2%	0.1%	12.8%	75.1	75.10
San Pedro del Pinatar	6.0%	10.9%	51.0%	22.9%	0.0%	15.2%	22.3	22.30
Torre Pacheco	0.1%	1.4%	94.9%	0.0%	0.0%	3.7%	189.40	189.40
La Unión	12.2%	47.0%	41.6%	0.0%	0.0%	11.4%	24.80	13.38

Source: Forestal Map 1:50.000. 1999 (Directorate General of Nature Conservation – Ministry of the Environment)

Wooded forestal area: Land covered with arboreal forestal species as the predominant plant manifestation and with a fraction of the total capacity covered with them being equal to or greater than 20%; it includes the farms whose exploitation is based on crops or pastureland involving husbandry, provided that the wooded capacity fraction be equal to or greater than 20%.

Forestal area: It is the part of the land occupied by spontaneously growing plant species and its area of influence being subject to a similar action by man. Likewise, it includes the scarcely diversified plantations of arboreal forestal species, whether autochthonous or otherwise, provided that human intervention on them be infrequent and slack, but it excludes those treated as crops, that is to say, involving frequent and considerable intervention for obtaining fruits, decorative elements, leaves, chemical compounds, flowers, gardening plants or poles (probably, in the future, biomass will have to be added to this list), being closer to agricultural than to forestal systems, as well as urban parks, wooded though the may be, botanical gardens and forestal tree nurseries outside woodlands.

Agricultural area: Is the land sown or covered with herbaceous and /or ligneous crops, be they annual or pluri - annual in character, whose tilling requires a strong human intervention; it may contain arboreal or bushy fruit - bearing species (flowers, leaves, etc.), but it is deemed to be an agricultural use provided that human intervention be of significance; it includes farms, hollow woodlands or intermittently cultivated woodlands when the capacity fraction covered by trees be below 10%, as well as tree nurseries outside woodlands (even if they are devoted to forestal species).

Unproductive area: It is the land fraction covered with buildings, urban parks (wooded though they may be), roads (with the exception of service tracks in woodlands), tree - lined walks, quarries, major power lines or other man - made structures, provided that they have an extension greater than 0.25 hectares.

Wetland area: It is made up of lagoons, pools, wetlands, marshlands and discontinuous water streams in which the said liquid be present, at least, for six months during the year.

Water areas: It is the part of the land consisting of rivers, lakes, reservoirs, canals or ponds having continuous areas greater than 0.25 hectares and holding water practically throughout the year.

2.2.3. The ecological processes

The water. The project's area is characterized by having a semi - arid Mediterranean climate, with annual precipitations below 350 mm. The scarcity of precipitations is translated into the intake of a limited amount of water by the drainage network in a natural way (which was determining an agricultural landscape dominated by unirrigated crops) and results in a low contribution to the hydrological balance of the lagoon, as the drainage network's receiving source. The low level of hydrological intakes, along with the situation of relative isolation from the Mediterranean and the significant evaporation and transpiration, turn the lagoon into a large salinizing pool, the conditions resulting from these factors being the determinants of which species and landscapes are predominant in the lagoon.

On the other hand, strong torrential rains are a common occurrence and one of the main ways to provide a eminently oligotrophic lagoon with nutrients.

The intake of waters from the outside brings about an important change in the use of the land, by undergoing a transformation into irrigated agriculture areas, thanks to an increase in the water flow. Such a transformation has not only affected the agricultural species having a presence in the area, but also the rest of landscapes and species associated with the aforesaid uses, including habitat - creating species of great interest such as the saline grounds which are beginning to be affected by competition processes and, as a result, they are being displaced by other species from less saline environments, such as the ditch - reed fields.

Nutrient cycle, productivity. The higher retention and recycling of nutrients increases along with diversity. In the area under consideration, there is an increase in the intake by the lagoon of nutrients originating from agricultural fertilization, which provokes an **eutrophication** process (already detected). The availability of nutrients favours the explosive growth of certain species, characterized by their high efficiency in the assimilation of nutrients, as it is the case with the invading algae *Caulerpa prolifera*, which over the last few years has colonized over eighty per cent of the lagoon surface since it entered the lagoon as a result of the fall in salinity. Or the annoying explosions of the large scyphozoan jellyfishes, either autochthonous such as the *Aurelia aurita* or invading such as the species known as *Cotylorhiza tuberculata* and *Rhizostoma pulmo*, which become a real problem for the tourist industry during the summering seasons.

Mediterraneization. The isolation of the Mar Menor with regard to the Mediterranean, in conjunction with extreme environmental conditions (thermal stress, high salinity etc.), did create in the lagoon landscapes being dominated by species adapted to the aforementioned factors. The environmental stress, along with the confinement, encourages the appearance of morphotypes specific to the lagoon. Having said that, anthropic actions carried out over the last few decades, such as the building of an artificial connection linking the lagoon with the Mediterranean or the creation of artificial beaches, are altering to a great extent the sedimentary and hydrological dynamics and, among other things, are eliminating one of the greatest biological barriers, namely, the salinity. The consequence of it all is the introduction of new species, the change in the landscape and the loss of its uniqueness.

Distribution of species. The Mar Menor is an area of international importance for the migration of aquatic, marine and limicolous birds, where they rest and feed. Likewise, the marine strip associated with the CAMP area shows some special characteristics thanks to an interesting hydro - dynamism, intense - current areas, fronts resulting from the collision of masses of Atlantic and Mediterranean water and outcroppings, which turns the area into a specially interesting one for migratory marine species.

Besides, the hydro - dynamic and geomorphological characteristics turn this coastline into a highly interesting stretch of land. It shows a borderline character where fronts consisting of typically Mediterranean masses of water and masses of Atlantic water have their origin. Such a borderline character does provoke an increase in biodiversity with Mediterranean representatives and species for which this coastline is the southern boundary of their expansion, or the northern one for Atlantic species. Over the last few years the introduction is being detected of thermophilous species of an Atlantic origin, on a far too short time scale, which is why this phenomenon has been associated with the global warming process. This area does, accordingly acquire a special interest as a record and monitoring area of processes deriving from the **climatic change**.

The great complexity and the environmental and geomorphological variability determine the presence of a wide variety of habitats within the area of influence, in emerged as well as in submerged landscapes.

2.2.4. Protected areas within the CAMP area

	Overall area (Hectares)	Size of the CAMP area (Hectares)
NATURAL PROTECTED AREAS		
Regional Park		
Calblanque, Monte de las Cenizas and Peña del Águila	2,453	2,325
Carrascoy y El Valle	16,684	5,416
Salinas y Arenales de San Pedro del Pinatar	856	856
Protected Landscape		
PjP Cabezo Gordo	281	281
PjP Espacios Abiertos e Islas del Mar Menor	1,186	1,186
Natural Area having no protection concept		
Islas e Islotes del Litoral Mediterráneo	42	42
La Muela - Cabo Tiñoso	10,691	653
Sites of Community Importance (SCI)		
Cabezo Gordo	223	223
Cabezos del Pericón	444	252
Calblanque, Monte de las Cenizas and Peña del Águila	2,822	2,072
Carrascoy y El Valle	10,769	3,278
Espacios Abiertos e Islas del Mar Menor	1,186	1,186
Franja litoral sumergida del litoral mediterráneo	12,739	10,822
Islas e Islotes del Litoral Mediterráneo	42	20
La Muela - Cabo Tiñoso	7,776	237
Medio Marino	159,074	81
Salinas y Arenales de San Pedro del Pinatar	842	842
Sierra de las Victorias	194	194
Special Protected Area (SPA)		
Isla Grosa	18	18
Islas Hormigas	154	154
La Muela - Cabo Tiñoso	10,925	676
Mar Menor	14,414	14,.414
Monte El Valle Y Sierra de Altaona y Escalona	14,825	4,831
Salinas y Arenales de San Pedro del Pinatar	842	842
Wetland of International Importance (RAMSAR)		
Mar Menor	15,182	15,182
Marine Reserve (RM)		
Cabo de Palos - Islas Hormigas	1,898	1,898
Specially Protected Area of Mediterranean Importance (SPAMI)		
Área del Mar Menor y Zona Oriental Mediterránea de la Costa de la Región de Murcia	27,503	27,503

Regional Regulatory Scheme:

- Act 4/92 on the Regulation and Protection of Territory in the Region of Murcia: Regional Park; Protected Landscape; Natural Area Having No Protection Concept
- Decree 15/1.995, approved on March the 31st, whereby the Cabo de Palos - Islas Hormigas Marine Reserve is established: Marine Reserve of Interest to Fishing (**RM**)

National Regulatory Scheme:

- Directive approved on May the 11th 1.982 whereby the marine repopulation activity is regulated; Directive approved on the June the 22nd 1.995, whereby the Cabo de Palos - Islas Hormigas Marine Reserve is established.

International Regulatory Scheme:

- Sites of Community Importance susceptible of inclusion in the Natura 2000 Network (**SCI**)
- Special Protected Area for the Protection of Birds (**SPA**)
- Wetland of International Importance according to the Convention on the Conservation of Wetlands with International Importance, Specially as Aquatic Bird Habitats (**RAMSAR**)
- Specially Protected Area of Mediterranean Importance (**SPAMI**) according to the "Protocol on Specially Protected Areas and Biological Diversity in the Mediterranean" (Barcelona Convention).

2.3. SOCIAL AND ECONOMIC CONTEXT

2.3.1. Characteristics of the Population .

2.3.1.1. Demography[14]

The total figure for the population of the Region of Murcia is 1,190,378 inhabitants (2.93% of the overall national figure: 40,847,371 inhabitants). The Region of Murcia is among the Spanish regions having shown the greatest increase since the 1991 census, its population having grown by 13.85%, well above the national average of 5.77%.

According to the Municipal Census carried out in 2001 (and other supplementary sources) the *de jure* population living within the boundaries of the CAMP area has been estimated at 130,454 inhabitants, whereas the seasonal increase resulting from tourism makes it possible to reach, approximately the figure of 300,000 inhabitants during the peak period (August).

The recent flow of immigrants in search of employment[15], the growth of the resident population coming from abroad, lured by the excellent climate and also, in some cases, a high birth - rate go some way towards explaining why the list of the seven municipalities with the highest growth rate in the Region of Murcia, during the 1991 - 01 period, includes five from the area (Los Alcázares (124.38%), Torre Pacheco (45.77%), San Javier (38.83%), Fuente Álamo (37.35%) and San Pedro del Pinatar (34.93%).

2.3.1.2. Education and training

The gross schooling rates for the whole of Spain for the 1997 - 98 academic year amount to 90.10% in the case of the secondary education level and to 40.80% in that of university education, the percentage of females being almost 7% above that of male pupils.

Table 2.2: Educational situation in 1991 of the municipalities in the CAMP area of influence .

Distribution of the % of the population being 10 years of age or above by the municipality and the educational level (1991)	Illiterate	Unschooled	Primary	Secondary	University
REGION OF MURCIA	4.46	27.43	28.95	33.36	5.81
Los Alcázares	2.42	27.21	30.93	35.12	4.32
Cartagena	2.73	22.13	31.80	36.44	6.90
Fuente Álamo	4.34	45.48	22.19	25.12	2.87
Murcia	3.58	22.03	28.22	37.34	8.84
San Javier	2.61	20.63	32.04	38.62	6.10
San Pedro del Pinatar	2.34	31.00	32.61	30.39	3.65
Torre Pacheco	3.60	33.49	28.73	31.59	2.60
La Unión	4.22	24.91	36.13	30.96	3.78

Source: Economic and Social Council of the Region of Murcia (CES, 1999). Report on the inter - municipal distribution of income. Inter - municipal disparities in the Region of Murcia during the 1986 - 1996 period. CES, Murcia.

The municipal schooling rates for females in an age group not affected by compulsory education are, in general terms, higher than those for males, such predominancy being more intense the younger the age of the pupils. The higher number of females receiving education is explained, in a complementary manner, by their work situation, with lower activity rate and a higher number of unemployed individuals than is the case among the male population of a working age.

[14] Annex VI. Statistical charts. Chart VI. 2. Population by the municipality and the population entities in the Mar Menor CAMP area, age (large groups) and sex.

[15] Foreign immigration into the area for the year 2000 goes, in the main, to rural municipalities such as Fuente Álamo (1,173 people) and Torre Pacheco (1,354 people) as well as San Javier (1,058 people), probably due to the greater need of unskilled workers and to the vicinity to the work centres.

2.3.1.3. Employment and personal wealth.

The municipalities in the CAMP area have low unemployment rates in comparison to the regional level, the inland municipalities - Fuente Álamo and Torre Pacheco - being the ones with the lowest rates of them all. The town of La Unión does reflect, with the lowest rates of activity and employment, its worse situation. This is so because of the difficulties entailed in the attainment of an alternative social and economic development following the abandoning of mining (See data from Annex VI. Statistical Tables; Table VI. 3. Unemployment and activity rates by the municipality in the CAMP area of influence)**.**

In comparison to the average situation in the Region of Murcia, the area's municipalities are among those having the highest *per capita* added value and family income, and the lowest rates of poverty risk. They represent, overall, more than 58% of the regional Available Gross Family Income (RFBD) and in terms of *per capita* value, the municipalities of San Javier (9.126) and San Pedro (8.104) stand out, as a result of the greater development of their economic activities. The same value, in the case of the rural municipalities of Torre Pacheco and Fuente Álamo, is also of significance, for it is even higher than that of Cartagena. La Unión is at the bottom of the league, being noticeably below the regional average. Even so, within the CAMP area small population entities can be found showing a poorer record, such as those located in the innermost rural area outside the area irrigated through the River Tagus - River Segura Water Transfer (TTS), due to their reduced alternative possibilities of economic development.

Table 2.3: Available Gross Family Income for sixteen of the municipalities in the CAMP area of influence .

Available Gross Family Income (RFBD) 1996	TOTAL (thousands of €)	Per capita (thousands of €)
REGION OF MURCIA	7,531,211	6,864
Los Alcázares	40,977	7,449
Cartagena	1,193,454	7,000
Fuente Álamo	64,362	7,115
Murcia	2,615,629	7,565
San Javier	153,078	9,126
San Pedro del Pinatar	109,348	8,014
Torre Pacheco	145,998	7,176
La Unión	75,764	6,864

Source: Regional Statistical Centre.

2.3.2. The economic activities.

The current tourist and agricultural exploitation of the territory and its resources are the main economic driving forces of the CAMP area, having a repercussion on other activities through their intermediate demands. There are three sub - areas within the area being differentiated by the territorially prevailing economic activity: the mining and industrial decline sub - area comprising the municipalities of La Unión and Cartagena; the touristic sub - area around the Mar Menor lagoon and its front facing the Mediterranean Sea (municipalities of Los Alcázares, San Javier and San Pedro) and the interior agricultural sub - area (Murcia, Fuente Álamo and Torre Pacheco) divided up, in turn, by the existence or otherwise of an irrigation infrastructure (irrigated and unirrigated areas).

Attention is drawn to the fact that many of the social and economic data here included have a geographical reference to what we have called the CAMP area of influence, that is to say, the one

[16] *Available Family Income. RFD*: It includes the income of families and non - profit - making institutions earned during the year, after the payment of direct taxes on families and the compulsory Social Security contributions. It comprises, therefore, the income available to the families or non - profit - making institutions for expenses and savings.

completely encompassing the municipalities of Cartagena and Murcia[17]. This is so because of two reasons; firstly, due to the difficulties of statistically compiling and treating data to select a more local characterization and, secondly, for their being the poles of the most important territorial development axis between which the CAMP area is interposed, something which, therefore, explains its social and economic transformation.

The municipalities located within this area of influence are among the most economically dynamic in the Region of Murcia, a fact which is explained by their having the highest number of infrastructures put at the service of economic fomentation (communications, energy - related, educational, research - related, technological, etc.), as well as diversified economic activities in terms of range and productivity. With the exception of Cartagena and Los Alcázares, the rest of the municipalities were in 1996 above the regional average in terms of *per capita* Gross Added Value.

Following a first general description of the economic activities carried out in the municipalities of the CAMP area, we shall describe, in specific sections, those economic activities or sectors having had a greater influence on its territorial transformation or else having close links with the exploitation of existing natural resources.

2.3.2.1. Sectorial profiles of the CAMP area municipalities

Company profile[18]

As a whole, the social and economic area of influence, including the municipalities of Cartagena and Murcia, is home to 56.6% of the companies operating in the Region of Murcia.

With regard to the dimensions of entrepreneurial activities it must be stated that, according to the size of the workforce, 52% of the intermediate and large - size establishments of the Region of Murcia (those having between 50 and more than 500 employees), 58.7% of the small-size ones (more than 10 and less than 50 employees) and 56.5% of the very small companies (less than 10 employees) are based in the area of influence, although in the municipalities of Cartagena and Murcia are located, respectively, 47%, 50.6% and 48%.

Industrial profile

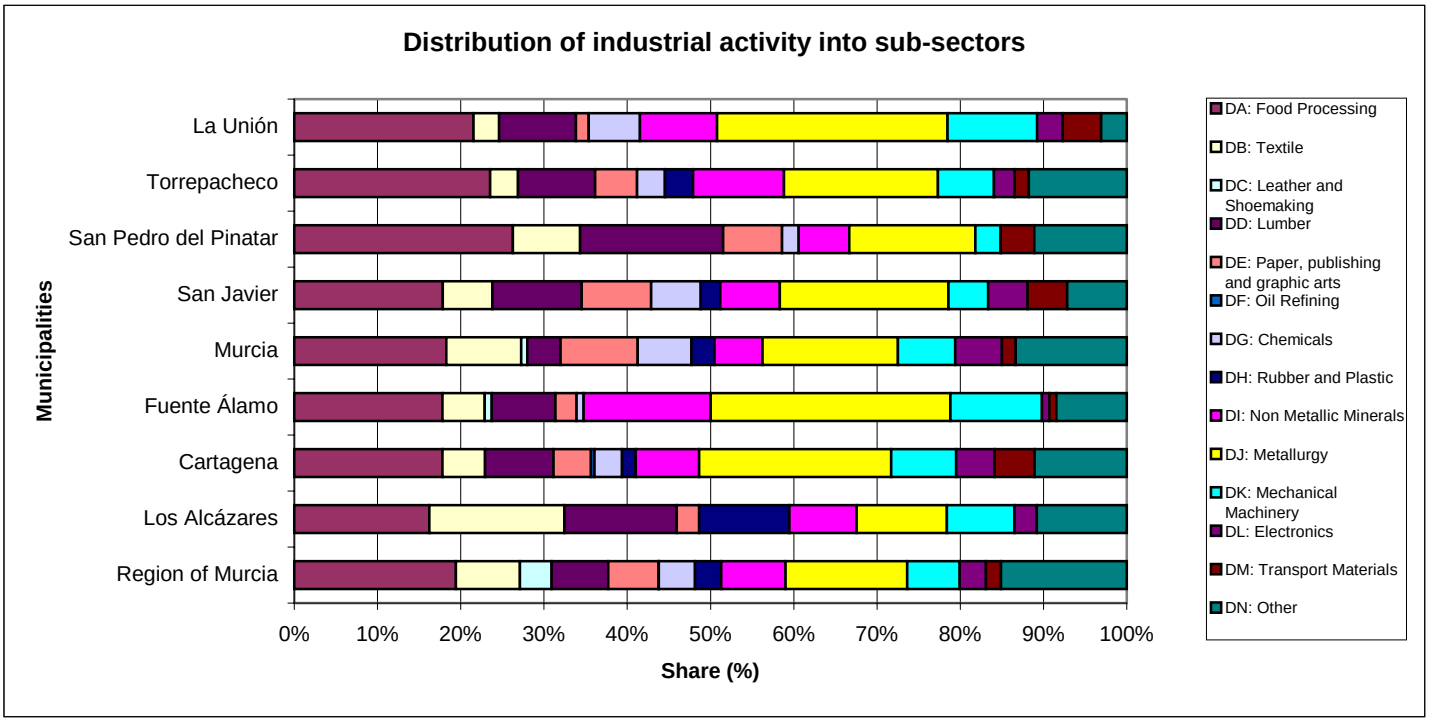
The importance of industrial activities within the CAMP area is very limited, for the number of industrial establishments hovers around 6.5% of the regional total. This figure only includes those municipalities whose boundaries are in their entirety within the area, since the location of industrial establishments from Cartagena and Murcia in the CAMP area is not deemed to be very significant with regard to their own, respective total figures. However, if we are to envisage the area of influence as completely encompassing the municipal areas of Cartagena and Murcia, 39% of the industrial activities located according to establishments should be added.

Below, and by means of a graph, the profile is shown of the industrial sector by the economic activity of each one of the municipalities in comparison to the average sectorial profile for the Region of Murcia.

[17] In fact, other municipalities could also be considered being as close, or even closer, than part of the Murcia municipal area (e.g. Beniel, Santomera and Alcantarilla as well as some belonging to the Self - Governing Region of Valencia -Pilar de la Horadada).

[18] Annex VI. Statistical Charts. Chart VI. 4. Business establishments by the economic sector in the CAMP area; and Figure VI. Sectorial comparison between the CAMP area municipalities and the Region of Murcia.

Figure 2.2: Sub-sectorial distribution of industrial activities in the municipalities belonging to the CAMP area of influence.



Source: Department of Economy and the Treasury. Directory of Economic activities. 1999.

This graph shows the leading industrial sub - sectors, the industrial diversification of each one of the municipalities and its relative comparison to the regional situation. The municipalities of San Pedro del Pinatar and Los Alcázares are the least diversified in terms of the number of sub - sectors. Fuente Álamo has a lower diversification level due to the greater concentration of its industrial activities in some subs - sectors.

2.3.2.2. Farming Sector

Agriculture

Traditional extensive agriculture, based on crops such as cereals and almond trees, was introduced with the large - scale ploughing up undertaken in the Seventeenth Century and which eventually reached an extent of up to 80,000 Ha, and is in the process of disappearing, together with the infrastructure used in the traditional techniques for the exploitation of local water resources (terracing up, wind mills and irrigation - ditch sluices), due to the expansion of intensive and forced (i.e. under plastic) fruit and vegetable crops, following the increase by about 23,000 Hectares, thanks to the transfer of water from the Tagus River (122 Cu. Hm., maximum) from 1980, of the incipient irrigated area of the Nineteen - Sixties, which was supported by the exploitation of underground water thanks to the spreading of the use of submersible pumps which meant that by 1969, the number of wells had reached three hundred.

According to data from the Statistical Yearbook of the Region of Murcia (2002) the evolution over the last few years, since 1997, shows that the division of agricultural land between irrigated and unirrigated crops has remained practically unchanged, although a slight reduction of the unirrigated area in favour of irrigated crops has taken place in the municipality of Fuente Álamo, in Murcia, along with a certain growth of the same in Torre Pacheco. In terms of area devoted to irrigated crops the following municipalities are the prevailing ones: San Pedro del Pinatar (95%), Torre Pacheco (81%) and San Javier (72%), whereas in terms of unirrigated crops, the most important is Fuente Álamo (88%). In the case of the municipalities of Cartagena and Murcia, the adding - up of data makes it impossible to differentiate the areas included within the CAMP area. However, since the only area having been transformed into irrigated land in the municipality of Cartagena matches the one included

in the CAMP area, that getting the benefit of the transfer of water from the River Tagus, it may well be considered that the irrigated area will be close to the 13,658 - Hectare figure. On the other hand, it is estimated from other sources that the irrigated area in the part belonging to the Murcia municipal area could be close to 11,000 hectares, 1,000 of which are of completely new creation, through the process of transformation of unirrigated into irrigated land resulting from the Transfer of Water from the River Tagus (TTS), whereas the rest depend on other hydrological resources (River Segura, underground aquifers, purified waters, etc.)[19].

In general, the irrigation system most widely used in the farms is dripping, amounting to approximately 36% of the region's total[20] it being predominant in herbaceous crops. Associated with the irrigated areas there is an agricultural drainage network made up of canals taking advantage of the existence of small streams and water courses.

For the irrigation of the area there exists, since the mid - Nineteen Nineties, a series of medium - size desalting plants, managed by the associations of irrigated land farmers, also located within the project's area (Cartagena, San Javier, Torre Pacheco and Los Alcázares), which were built thanks to the existence of public subsidies for irrigation infrastructures intended for the betterment of the guarantee of supplies in times of drought. There are also numerous small self - powered (diesel) plants for private farms.

The distribution of crops, according to large groups, throughout the area of influence is the one shown in the following figure, based on the statistical data obtained from the 2002 Regional Statistical Yearbook. The same figure shows that irrigated prevail over unirrigated crops, as well as which is the main crop group.

Table 2.4: Distribution by the crop of unirrigated and irrigated areas[21] by the municipality within the CAMP area of influence (2001).

	Herbaceous		Ligneous	
	Unirrigated	Irrigated	Unirrigated	Irrigated
Region of Murcia	51,994	64,535	120,183	98,648
Cartagena (*)	479	7,279	2,922	3,888
Fuente Álamo	325	1,876	5,139	798
Murcia (*)	92	4,313	4,944	16,253
San Javier	30	2,585	26	1,287
San Pedro del Pinatar	5	720	15	379
Torre Pacheco	319	9,677	115	2,476
La Unión	18	215	12	90

(*) Municipalities overstepping the limits of the CAMP area.
Data for Los Alcázares are included in the municipalities of San Javier and Torre Pacheco.
Source: 2002 Regional Statistical Yearbook.

With regard to herbaceous crops, the almost general reduction experienced during the period under consideration (1997 - 2001) in the unirrigated area as against an unlimited growth of irrigated crops, with the exception of the coastal municipalities, can be seen. The main herbaceous crops both in absolute terms concerning the cultivated area and in comparison to the regional area, are the artichoke, the melon, the lettuce, the cotton, the broad bean and the broccoli. The municipalities of Cartagena and Torre Pacheco are the leading ones with regard to these crops.

The largest part of greenhouse farming activities in the CAMP area is devoted to vegetable garden produce, amounting to 34% of the regional area, the municipalities of Torre Pacheco, San Javier and San Pedro being the most important ones. Also worthy of mention, in Torre Pacheco and Cartagena, is the padded cultivation of garden produce, amounting to 30% of the region's total.

[19] Annex VI. Statistical Chart. Chart VI. 6. Evolution of the unirrigated and irrigated areas by the municipality in the CAMP area of influence.
[20] The inclusion of Murcia augments this figure, for a large part of its irrigated areas are outside the CAMP area.
[21] Fallow fields are not included.

With regard to ligneous crops, a general increase in the irrigated area can be perceived while the extent of the unirrigated area is either stagnated or being reduced. The most outstanding crops are citrus, even though the regional share of lemon is quite reduced, in the municipalities having irrigated areas (Torre Pacheco, Cartagena, San Javier and San Pedro del Pinatar); and almond trees, in the municipalities having unirrigated areas such as Fuente Álamo, and in Torre Pacheco in irrigated areas.

A part of the agricultural area is also devoted to ecological farming, which in the CAMP area as a whole covers an extension of approximately 1,209 hectares. The area devoted to nuts and dried fruit, the land left fallow, or the one devoted to green fertilizer and to garden produce deserves mention.

The prevailing agricultural land - holding regime is that of ownership followed by lease, whose highest proportion is to be found in the municipality of San Javier. On the other hand, the fact must be mentioned that the average size of farms is higher than the regional average[22], the municipalities of Torre Pacheco, Fuente Álamo and Cartagena leading the field.

Cultivated species, together with stockbreeding, are subsidised through several types of public funding from EU Guarantee - FEOGA, in compliance with Common Agricultural Policy and the respective Common Market Organizations, either granted to farmers or aimed at industrial processing.

Stockbreeding

Stabled stockbreeding is concentrated in the municipal areas of Murcia (229 installations[23] with a livestock population of 58,795 animals), Torre Pacheco (298 installations with a livestock population of 212,771 animals), Fuente Álamo (2,230 installations with a livestock population of 661,784 animals), Cartagena (997 installations with a livestock population of 229,773 animals), and La Unión (25 installations with a livestock population of 91,680 animals). The predominant stabled livestock species, well ahead of the rest, are pig farms, the relevant installations being devoted both to fattening and to breeding, although in the municipality of La Union poultry are the predominant species.

Forestry sector

Within the agricultural sector, the forestry sub - sector makes a very low contribution to the final regional agricultural production, it being specially so in the CAMP area (in both cases below 0.5% of the final agricultural production). However, and although the forestry sector's share of the agricultural production in the area is practically insignificant, its importance with regard to the wooded area (22% of that of the municipalities included in the CAMP area) and to the contribution it makes to the conservation of biodiversity, give it an ecological and social value well above that deriving from its productive side. Thus, the greatest part of the terrestrial protected areas are made up of forestal systems generating indirect benefits of an environmental, ecological, recreational and cultural nature.

The fall in the number of traditional forestry exploitations and uses (wood, firewood, extensive stockbreeding, esparto grass, etc.) resulting from the low productivity of woodlands and their decrease in profitability (due to the fall in price of the products and the increase in costs), has meant, in parallel, a reduction of forestry treatments and of actions intended for the regulation and planning of woodlands. On the other hand, demand for wood and its derivative products is growing and they are being imported from other regions.

At the same time as the diminution was taking place of forestry exploitations and the appropriate income generated by them, the social value of these ecosystems has increased as a result of the environmental, cultural and landscape - related services rendered by them, the recreational and tourist activities being carried out in them having been significantly increased.

The future of the forestry sector is going to be given a fresh impetus by the recent presentation in 2003 of the *Forestal Strategy of the Region of Murcia* as a planning instrument laying down the objectives, criteria and measures to be reached or implemented during its life, by giving explicit form to the recommendations of the *Regional Strategy for the Conservation and Sustainable Use of Biological Diversity* as regards forestal management and the conservation of forestal ecosystems.

[22] If we take into consideration the division between farms smaller and bigger than 5 hectares. The data used have been those presented in the 2002 Statistical Yearbook of the Region of Murcia.
[23] Not all the installations are currently in operation.

The allocation of subsidies to the reforestation of marginal agricultural land of a reduced productivity, is an example of the reorientation encouraged by government institutions, thanks to the UE Rural Development Regulations being financed by the FEOGA-G fund, on the basis of the aforementioned social benefits provided by forestal systems. Under this programme, land has been reforested in municipal areas inside the CAMP area of influence such as: Cartagena, Fuente Álamo, Murcia, Torre Pacheco and La Unión.

2.3.2.3. Fishing sector

Fishing

Fishing activity in the littoral strip of the CAMP area has been carried out even since the settlement of the first inhabitants, harpoons having been found of Magdalenian origin. In Roman times, fishing acquires great importance as proved by the establishment of "garum" salting industries at Las Mateas (Los Nietos), and is intensely developed during the Arab domination, mainly in the lagoon, by using trap - like nets: Moorish nets, wickerwork traps and the like, as well as a peculiar net called weir: a maze of reeds which, being placed in channels, takes advantage of the movement of fishing species between the Mediterranean and the Mar Menor. Likewise, a date has been established for the installation in Cabo de Palos of a return tuna fishing - net which was highly productive at the end of the Sixteenth Century and which ceased to be installed with the decline of fishing that came about during the Seventeenth Century.

Nowadays, traditional fishing is still being carried out in the Mar Menor, using nets dating back to Arab times and which have become a part of the lagoon landscape. This activity, regulated by the 1984 Fishing Rules, is sustained by the migration of species between the lagoon and the Mediterranean and, therefore, is characterized by the seasonality of the target species and by the nets used to catch them. The environmental changes that took place following the opening of the Estacio canal had a repercussion on the amount and the composition of catches, the species typical of the lagoon (mullet, gilthead, etc.) diminishing in numbers. In 1985 the traditional reed - fence fishing method was abandoned, although it was reintroduced in 1998 with the restoration and commercial exploitation of the weir at La Torre.

Table 2.5: Data on fishing activity in the CAMP area.

Fishing Base-Ports	Types of boats listed	Number of Workers	Fishing Production (1996-2001)	Species
San Pedro del Pinatar	- 97 small net - 1 trawler - 1 surface trawl liner - 7 fence	165	322 tm. (1.255.520 €)> 707 tm. (1.704.822 €)<	Eel, "chirrete", gilthead, "magre", red mullet, prawn, anchovy
Cartagena	- 41 small net - 11 trawler - 6 fence - 5 surface trawl liner	150	937 tm. (2.879.671€)> 1.730 tm. (4.646.909 €)<	Red mullet, cuttlefish , hake, shrimp, anchovy

Source: Fishermen's guilds of San Pedro del Pinatar and Cartagena.

Traditional fishing boats carrying out fishing activities in the lagoon have in the main their base - port in San Pedro del Pinatar, and they fish from the Lo Pagán fishing port, carrying out, at the same time as this type of lagoon fishing, other seasonal fishing in the Mediterranean coastal strip of La Manga. There is a trend towards a gradual, temporary (closed season) and final reduction both in the number of boats and in the size of the workforce, encouraged by the EU fishing policy. The main species caught have a high commercial value and provide the largest part of the income.

Aquiculture

Sea - farming through the use of floating cages has been exponentially developed over the last five years in the CAMP area, throughout the northern part of Mediterranean strip of La Manga.

In 1998 the first company engaged in the fattening of gilthead and sea bass establishes itself in the area, whose authorized production amounts nowadays to 810 metric tonnes. In 2001 two new sea

farms are authorized, one of them for the fattening and greasing of tuna fish from the Mediterranean catches and another that, in addition to this species, is contemplating the fattening of gilthead.

In the year 2002, in view of the high number of applications for the authorization of new aquiculture facilities in the San Pedro Marine District, the Department of Agriculture, Water Resources and the Environment declares an area of interest for sea - farming aimed at the creation of an enclosed area devoted to sea - farming in floating cages in the open sea, facing the port of San Pedro and the Torre Derribada beach. This aquiculture area consists of four lots and maximal production for each lot is 1,000 metric tonnes. Two facilities have been authorized and the applications for two more are being processed; their target species are tuna fish, gilthead, sea bass and other akin species. Once the companies whose applications are being processed establish themselves, aquiculture production authorized in the CAMP area shall amount to about 7,000 metric tonnes.

Bearing in mind potential levels of aquiculture production and the high commercial value of the species being bred, aquiculture is an important sectorial alternative in the area.

2.3.2.4. Tourist sector

Tourist development has been concentrated, in the main, in the coastal area around the Mar Menor lagoon. Such a development did commence at the beginning of the Twentieth Century, with the use of the lagoon as a bathing resort, limited though it was to the traditional existing population centres until, from the Nineteen Sixties on, the great transformation of the area from the tourist and urban - development standpoint begins, culminating in the declaration of all three Centres of Tourist Interest to the Nation designated as such in La Manga, in compliance with act 197/1963 on Centres and Areas of Tourist Interest to the Nation.

This is one of the most important economic sectors in the CAMP area, mainly, along its coastal strip, and one that shows continuity features with the more extended coastal development of the neighbouring province of Alicante. This type of tourist development stands out due to its second - home character, mostly used for summering (sun and beach tourism) by people from the region and from the country at large. This second - home, family - tourism profile explains why the level of current touristic expenses remains low.

This tourism is being reoriented by means of an incipient re - structuration and diversification strategy targeting the associated tourist services, such as those related to sailing and healthcare, through the improvement in its infrastructures and ancillary installations (for sport, leisure, etc.) and the search for new markets, basically foreign (nowadays having a 20% share of the market), for senior citizens. This strategy tries to overcome the inconvenient currently affecting the Region of Murcia, which does not have a consolidated image as a tourist destination in that particular market segment.

In coastal towns there is an offer of tourist lodging facilities (hotels, apartments, boarding houses, camping facilities, etc.) amounting to 15,000 places, 75% of which are located in the CAMP area. A significant growth is foreseen in the number of new hotel facilities and apartments associated with large residential and sport complexes; a growth which is also expected to benefit specific hotel locations that take advantage of the tourist value of natural resources of the CAMP area coastline's protected areas.

Around the Mar Menor lagoon twelve small - to - medium size marinas have been built, a number which includes the two largest in the whole of the Murcia coastline, due to the ever increasing popularity of the practice of sailing, the second most important reason attracting visitors following the enjoyment of the sun and the beaches, and to its complementary nature to the main tourist product: residential housing. The building of new marinas and the betterment of capabilities and services has become a strategy for the generation of greater added value in tourist activities and the attraction of tourists based on the fostering of sport activities, either as a leisurely or as a professional activity.

Other of the area's traditional tourist activities, and one intended to be still fostered as a part of the tourist activity diversification strategy, are the healthcare services associated with the therapeutical qualities of the Mar Menor mud baths.

The development of rural tourism and camping - grounds in the area is hardly significant. Whereas the latter are located in the coast, amounting to less than 14% of the region's total, the former is concentrated in the most rural municipalities such as Fuente Álamo and Torre Pacheco. The total number of rural - tourism establishments in the areas is seven, which amounts to 2% of the region's total.

2.3.2.5. Mining activity

Mining was an important activity in the Sierra de Cartagena - La Unión, in the southern boundary of the Mar Menor emptying basin, thanks to the extraction of metallic minerals from 1957 onwards though open - cast mining. The industry was abandoned due to the lack of financial viability resulting from operating in a declining market environment and having to defray the costs of the new environmental protection requirements during the last decade of mining activity (1991). This scenario has seriously affected the population centres being closest to the mines, such as La Unión, where it was the driving force of economic activity, a situation compounded by the recession of heavy industry in Cartagena. All that explains the decrease in population and the stagnation affecting this particular municipality.

The exploitation of salt works, covering an 745-hectare area, is another of the area's traditional activities still being carried out in San Pedro del Pinatar, although in the district as a whole it has been reduced in comparison to previous levels as a result of the limited production resulting from a reduced area, as it happens, by way of example, in Lo Poyo, Rasall and Marchamalo; the salt works are even receiving subsidies for taking measures aimed at the conservation of wetlands. The rest of extractive activities are related, in the main, to the extraction of building materials, although in a small scale when compared to region's total (below 14.67%), for some of the said extraction activities take place outside the Mar Menor CAMP area (municipalities of Cartagena and Murcia). With regard to the size of the workforce, it amounts to 20% of the sector's total. The municipality of Fuente Álamo, which concentrates the largest extraction activity in the area, must be mentioned[24].

2.3.2.6. Communications services.

Transport

The proportion of vehicles to inhabitants in the Region of Murcia (617 vehicles/1.000 hab.) is higher than the one for Spain as a whole (600 vehicles/1.000 hab.). In the case of the CAMP area the rate is even higher specially in the municipalities of Torre Pacheco and Fuente Álamo (734.4 and 720.1), due to the number of industrial and agricultural vehicles, as it also happens in the littoral municipalities of San Javier and San Pedro (677.8 and 682.2). In the municipalities within the CAMP area of influence, there are 420,233 vehicles, or 57% of the region's total number.

Road transport is the predominant one in the communications systems linking the Region of Murcia with the outside, for it is used in 95.4% of the journeys and by 92.7% of transported commodities.

The CAMP area of influence has the highest density of roads per square kilometre. If we take into consideration the average of the three districts it encompasses, it amounts to 0.46 Km/Sq. Km. as against a regional average of 0.31 Km/Sq. Km.

- Roads: High - capacity highways such as the Murcia - Cartagena dual carriageway, the Alicante - Cartagena motorway, the Mar Menor and La Manga dual carriageways, providing access, from the outside (mainly from Murcia, Cartagena and the Self - Governing Region of Valencia), to all littoral tourist destinations in the CAMP area. The secondary road network, either inter-municipal or municipal, is quite dense due to the inclusion of rural roads built as a result of the transformation of the Campo de Cartagena into an irrigated farming area.
- Railways: In the CAMP area there are two tracks of the Madrid - Murcia - Cartagena railway line, plus the Cartagena - Los Nietos FEVE (Narrow Gauge) railroad. The former is used for the national and regional transport of passengers (675 passengers per day) and goods (although in this case, it is a limited service, even concerning the Cartagena port area). The latter is a

[24] Annex VI. Statistical Tables. Table VI. 9. Evolution of the main features of the mining sector by the municipality (2002)

suburban passenger line linking the city of Cartagena, La Unión and the Cartagena municipal area with the Mar Menor (1,755 passengers per day).

- Airports: The San Javier airport is located within the CAMP area. Its use for passenger traffic is limited by its dual character of civil and military airfield. The 2001 - 2006 PEDR envisages the building of a new international airport for the Region of Murcia in the CAMP area, within the municipal area of Murcia, with a view to improving tourist accessibility to its littoral area as well as to developing the transport of goods by air.

Public transport characteristics.

- Road passenger transport: This type of transport is limited due to its deficient development.
- Road goods transport from the CAMP area to the outside: Agricultural produce makes up the highest volume of this type of transport.

Telecommunications

The municipalities in the CAMP area of influence have a high rate of telephone lines in comparison to regional levels (308), the highest numbers being found in the coastal municipalities of San Javier (524), Los Alcázares (535.9) and San Pedro (404) due to the importance of the second - home population. On the other hand, numbers are lower in the towns of La Unión and Torre Pacheco. Both in the case of telephone lines and with regard to Internet access, the whole of these municipal areas have 60% of the region's total due to the influence of the area's two main cities: Murcia and Cartagena.

The proportion of fixed telephony lines to inhabitants in the RM is 37.5/100 hab. (as against a national average of 42.9). The level of digitalization is 85%, quite similar to the national one (87%). The CAMP area stands out due to a number of installed telephony lines higher than the region's average, with the exception of La Unión, as a result of the high numbers of second homes.

2.3.2.7. Activities related to energy, heavy industry, water and waste

Energy and heavy industry

In the CAMP area of influence, the municipality of Cartagena stands out for its heavy industry activities: chemicals, shipbuilding and power generation. In the last few years the industrial activity is being diversified through the establishment of new industries and industrial complexes, such as plastics, biological fuels and new technological activities.

Therefore, in this territory, close to the CAMP area, is located the greatest part of the energy - related activities of the Region of Murcia.

With regard to the exploitation of renewable sources of energy[25] the existence can be mentioned of an wind power plants for the generation of electricity in the municipal area of La Unión.

Water

Given the importance that for the CAMP area has the supply of water, resulting from its dependence on outside hydrological resources as well as from the fact that its activity is a part of the industrial sector, a few features are mentioned concerning this activity and the management and treatment of waste. Although these activities have been exclusively carried out by government institutions due to its public - service nature, they are being increasingly carried out by the private sector, under public supervision.

The Taibilla River Canal Association (MCT), a public autonomous body dependent on the Ministry of the Environment (MMA), is in charge of supplying water to almost every municipality in the RM, including all municipalities within the project's area. It also supplies water to the large industrial establishments located in the Cartagena municipal area.

[25] There are plans to build more than 100 aeolian parks (currently at the project stage) in the whole region, to generate more than 2,800 Megawatts.

New supply sources have been planned[26], such as desalting and transfer from other hydrological basins.

Among the municipalities so supplied in the Region of Murcia, those located in the Campo de Cartagena stand out for its consumption (428.69 l/hab./day[27]), as do basically tourist towns due to the peak consumption reached during the holiday season in places such as San Javier (746 l/hab. /day), Los Alcázares (774 l/hab./day) and San Pedro del Pinatar (436 l/hab./day). As a whole, the municipalities in the CAMP area, to the exclusion of Cartagena and Murcia[28], account for 12 % of the annual consumption of the part of the Region of Murcia supplied by the MCT.

Waste

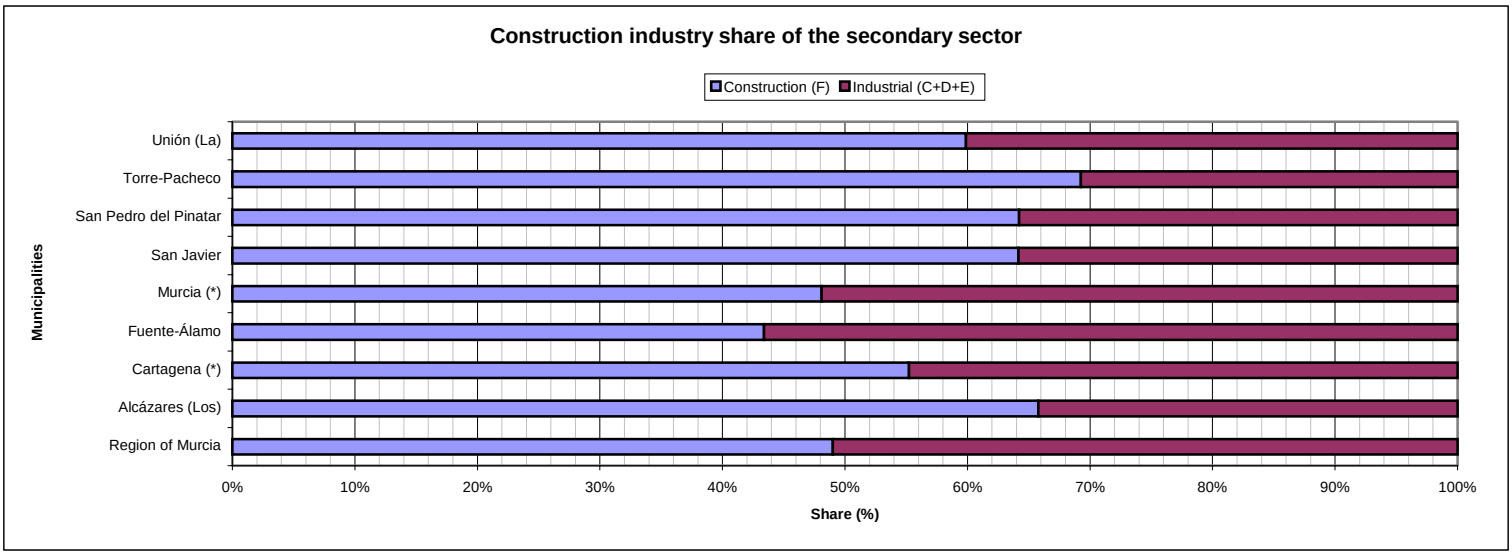
The management of RSU is performed by two territorial groupings (apart from that performed in the municipal area of Murcia): Campo de Cartagena (municipalities of Cartagena, Fuente Álamo and La Unión) and Mar Menor (municipalities of Los Alcázares, San Javier, San Pedro del Pinatar and Torre Pacheco). Likewise, as it is the case with other municipal public services, the management and treatment of waste is being privatised or else its public management is being performed by a consortium made up of regional and local authorities (COGERSOL). RSU is transported, in general, in a direct manner by collection vehicles to the treatment centres or dumping grounds although, nowadays, transfer centres or clean spots are being established where refuse is concentrated prior to their final transport to the treatment process.

2.3.2.8. Construction Sector

Free, or privately - sector built, housing completed in 2001 within the CAMP area of influence amounts to 63% of the region's total. Torre Pacheco stands out among the municipalities in the interior having a high level of activity and a greater overall growth, with a 4.3% increase over the level of house building for 1993. The coastal municipalities kept a constant activity level through the 1993 - 2001 period, except for San Javier where it has increased by 3.5%. (See the data shown in the Attached Table 2.4.3: Free houses completed (1993-2001) and begun[s] in 2001).

Construction is specially important, as a result of tourism - related building activities, in the coastal municipalities (Los Alcázares, San Javier and San Pedro) with a similar share of around 65%.

Figure 2.3: Construction industry share of the secondary sector by the municipality



[26] See the River Segura Basin Hydrological Plan and the National Hydrological Plan.
[27] Gross supply, in 1991, was estimated at 428.69 l/hab/day, above the average estimation for the Region of Murcia (302.65 l/hab/day). They were calculated on the basis of the 1994 consumption (provided by the MCT) and the 1991 Census (de jure population). With the rectification of the 1994 Register the average for the RM is reduced to 281 l/hab/day.
[28] The consumption in these municipalities amounted to 42% of the region's total in 1994.

(C) Extractive industries; (D) Manufacturing industry; (E) Electric power generation and distribution, gas and water
Source: Department of Economy and the Treasury. Directory of Economic activities. 1999.

Finally, we must state that construction has become the predominant activity in the municipality of La Unión, being the driving force of its development following the decline of industrial activities associated with mining. The only municipality in the CAMP area where industry is more important than construction is Fuente Álamo.

2.3.3. Territorial development of the settlements.

The main sectorial uses explaining the configuration and territorial development of the settlements existing in the CAMP area, are the farming sector and, specifically, irrigated crops; the tourist sector and the second - home market and open - cast mining.

Therefore, two farming models are to be found within the CAMP area's agricultural sector, the first one, characterized by the development of intensive and technified horticulture with the capability to compete in foreign markets. The second model consists in what remains, increasingly more fragmented due to the acceleration of changes resulting from alternative uses of the land, of traditional, pre - existing unirrigated farming whose low commercial profitability can only be sustained by the existence of public subsidies in view of the lack of alternatives providing its produce with a greater added value. Such an acceleration is explained by the evolution of the social and economic development axis configured by the tourism in coastal areas, the economies of the two large neighbouring cities of Cartagena and Murcia and the strength of the irrigated farming sector.

Due to the tourist sector development, coastal settlements have been configured according to three differentiated models: a new - city model with high - rising, intensive urban development and hotels in La Manga (San Javier); another, associated with the development of traditional urban areas (San Pedro del Pinatar, San Javier, Los Alcázares); and extensive housing estates (Cartagena population centres in the Mar Menor coastal strip, such as El Lentiscar, El Algar and Rincón de San Ginés).

The building of second - home housing reaches outstanding levels in the municipalities of San Javier (71.02%) and Los Alcázares (77.54%)[29].

The improvement in communications with the two most important cities in the area, Murcia and Cartagena, the scarcity of land in the cities and the worsening of the habitability conditions deriving from urban congestion, are factors boosting residential construction for week - ends and the building of first homes in certain rural areas of the said municipalities within the CAMP area.

A large part of the industrial settlement existing in the CAMP area has taken place in a spontaneous, piecemeal and disperse way, interspersed among residential areas and sharing public services with population centres (RSU collection, supply and sanitation), in the absence of overall municipal and regional planning concerning its location within the territory[30], and of development compatible with the rest of uses. In the periphery of the most important population centres such as Cartagena, and in other, less touristic, from the interior an incipient development is taking place, on the initiative of the municipalities, of new industrial estates to cater for the need of land for industrial activities, usually taking place next to the high - capacity road or rail links running through the CAMP area.

There is a high degree of business concentration in San Pedro del Pinatar, as it happens in San Javier and Los Alcázares, due to the higher territorial concentration (57.4 businesses/Sq. Km) and to the activity of the working - age population.

The lack of territorial development guidelines for the protection of public natural assets at the beginning of the tourist sector development, the disparity of urban planning in the area's municipalities and the gulf between neighbouring actions, have prevailed over the results of the measures taken for the harmonization or control thereof, often belatedly implemented in the face of problems as they appear, creating conurbation situations without proper connectivity, with poor

[29] Annex VI. Statistical Charts. Chart VI. 10. Uses of residential land by municipality (2001).
[30] The drawing up of regional guidelines on industrial land is currently underway .

integration into a displaced and fragmented rural environment, with urban congestion and occupation of public areas and their areas of influence (marine - terrestrial and fluvial public domains), specially remarkable in those municipalities having greater neighbouring urbanized areas and in the respective, already developed, beach lines.

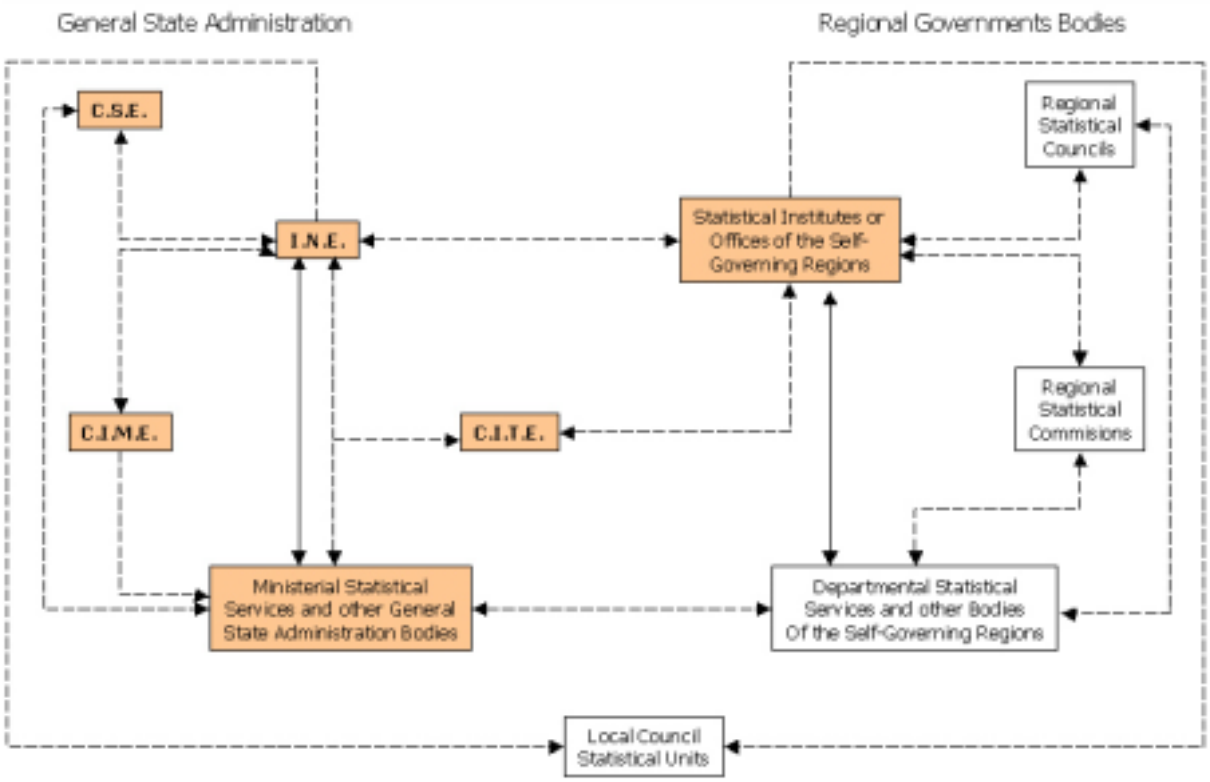
The important degree of population seasonality has brought about, in many occasions, that the development and the quality of public services be insufficient to meet summer peak demand, for, in addition, the private sector has quite frequently developed the area ahead of the availability of public funding for the improvement of the service infrastructure networks and for allowing them to reach their appropriate size, basically, in the primary networks.

2.4. INFORMATION FOR THE ASSESSMENT OF THE ENVIRONMENTAL INTEGRATION OF SOCIAL AND ECONOMIC DEVELOPMENT

In this section we try to briefly point out those aspects of the existing information being most relevant to assess the integration of social and economic development into the environment within the scope of the Mar Menor CAMP.

Below, a chart is included showing the relationships existing between the different public bodies handling statistical information. Among the statistical services of the Ministries, that of the Ministry of the Environment must be mentioned as supplier of basic data concerning environmental matters for the statistics prepared by the National Statistical Institute (INE). In the Region of Murcia, the Department of Agriculture, Water Resources and the Environment has its own statistical services, among them the SIGA for environmental information and, besides, there is a Regional Statistical Centre acting as a regional statistical coordination and planning body (see subsection 1.3 Institutional structure).

Figure 2.4: Diagram of the statistical organization in Spain and in the Region of Murcia.



CSE (Higher Statistical Council); CIME (Inter-Ministerial Statistical Commission); CITE (Inter-Territorial Statistical Committee); A.G. (General Administration). INE: National Statistical Institute

From the National Statistical Institute (INE) the coordination is carried out, on a national level, of the development of incipient statistics, accounting and sets of environmental indicators promoted by the European regulatory scheme and the community environmental policy (Sixth Community Action Programme 2001 - 2010) through EUROSTAT (UE Statistical Office). The National Statistical Plan (2001 - 2004) envisages the following development lines:

- **Environmental statistics on water**. Consisting of the following surveys: the surveys on the use of water in the agricultural, industrial and service sectors, and the survey on the supply and treatment of water. The main objective of this project is that of providing reliable and consistent information measuring the economic and environmental effects of water on the social and economic and territorial development of a society. The implementation of the Water Framework Directive will require that Member States incorporate new studies for the purpose of having information available by the hydrographical basin, something that the Spanish government will have to undertake in the coming years.
- **Statistics on waste**. Consisting of the following surveys: the surveys on the generation of waste in the industrial and in the sector services, and the survey on the collection and treatment of urban waste. The basic goal consists in monitoring the policies concerning waste and achieving the strict implementation of the general principle of environmental policy *Whoever does pollute, must pay.* The implementation of Community Regulations on Waste Statistics will require that the Member States Statistical Offices incorporate new studies on waste; in this regard, it is necessary to point out that agrarian waste, the import and export of waste and packaging waste are the Commission's main priorities in the short term, and that the INE will have to incorporate them into its statistics in the coming years.
- **Environmental satellite counts of water, atmospheric releases and the count of environmental protection expenses**. Environmental counts are a type of synthesis statistics whose carrying out, by using as a reference the Integrated Economic and Environmental Accounting System (SEEA[31]) and the European System for the Collection of Economic Information on the Environment (SERIEE), has been made possible thanks to the great effort made by the INE in the last few years to implement an Environmental Statistical System. In this regard, surveys on water, on waste and on environmental protection expenses are the statistical base on which environmental counts have been established. At this moment in time, work is being carried out for the preparation of counts of waste, forests and materials balances. This set of counts will become the central core of the Environmental Count System.

The main problem is the degree of aggregation (at the level of region or self - governing region) of their surveying operations limiting their local information application within the scope of the CAMP area, as well as the limited development of environmental integration statistics.

Comments would be lacking on the existing voids concerning the knowledge of relationships between environmental degradation and pollution processes and their causes.

2.5. INTERRELATIONSHIPS BETWEEN ENVIRONMENTAL AND SOCIAL AND ECONOMIC FACTORS

2.5.1. Diagnosis of the current situation

The social and economic changes carried on in the area over the last few years have brought about both environmental deterioration and the loss of cultural values and traditional uses in the Mar Menor environment (old bathing resorts, traditional fishing nets or old salt works). Also, closely linked with these activities, there exists a historical and cultural heritage consisting of buildings such as the old mills used for the extraction of underground water, the windmills that used to drive water from the Mar Menor to the salt ponds, etc.; having become nowadays elements typical of the landscape and a record of traditional uses.

[31] Integrated Economic and Environmental Accounting System (SEEAA), as formulated by the United Nations in 1993 and amended in the year 2002.

Next, a short analysis is included of the environmental repercussions generated by the sectors deemed to have the greatest significance.

AGRICULTURAL SECTOR

From the Nineteen Nineties on, the expansion starts of irrigated crops in the environment of the area under consideration, substantially modifying the land - holding regime and the ways the resources were exploited, based up to that moment on traditional unirrigated and irrigated farming.

The agricultural intensification process gives rise to important effects on the area being the subject matter of this study, on the terrestrial as well as on the lagoon and marine environments. The substitution of traditional unirrigated farming by intensive farming brings about a substantial transformation of the landscape as well as the elimination and degradation of terrestrial habitats, in addition to structural deficiencies in the design and the size of the agricultural drainage network, which contributes to the natural risk of flooding.

On the other hand, fertilizers and phytosanitary products (in the main, chemical fertilizers and pesticides), used for increasing agricultural productivity are, in part, lixiviated and carried to the lagoon by overflowing water. These intakes have contributed to the lagoon's eutrophication process, oligotrophic in its origin. These changes have originated a modification of submerged landscapes through the substitution of species and communities, the ingress of allochthonous species and the explosion of opportunistic species including the *Cotylorhiza tuberculata* and *Rizhostoma pulmo* jellyfishes.

Besides, the increase in irrigation farming has originated a growing need of water as a resource. Because of that, the old windmills have been gradually substituted by new technologies for the exploitation of the area's underground water. This change has given rise to the intense overexploitation of the aquifers, bringing about, in turn, the salting of subterranean water by means of the intrusion of sea water. This process provokes, in turn, the salinization and loss of quality of the soils.

During the years 2001 and 2002, the Directorate General of Irrigated Lands and Rural Development has carried out activities aimed at the improvement and adjustment of the irrigation infrastructures in the Region of Murcia, for the consolidation and improvement of unirrigated lands. In the CAMP area the modernization stands out of the Campo de Cartagena Main Network, with the automation of water inlets in the main distribution areas.

STOCKBREEDING SECTOR[32]

Stockbreeding activity in the CAMP area is, in the main, focused on intensive hog and poultry - breeding farms. The problem with the greatest ecological repercussion being faced by current intensive stockbreeding is the amount or liquid excreta or liquids oozing from manure coming from the animals' metabolism, to which must be added the increased demand for water. Nowadays, the hog-breeding sector is undergoing an environmental restoration process and funds are available for the sector's environmental restoration.

FISHING SECTOR

The widening and dredging of the "El Estacio" canal linking the Mediterranean Sea with the Mar Menor, in the early Nineteen Seventies, were the origin of profound changes in the hydrography, the biological communities and the fishing production of the Mar Menor, with important social and economic repercussions. Over the last fifteen years, the number of mollusc and fish species has doubled. The increase in biodiversity has entailed the reduction of the stocks of the most relevant fishing species.

On the other hand, at this moment in time a **recovery of traditional fishing** has taken place in the area known as "La Encañizada" (a part of the San Pedro del Pinatar Salt Marshes and Sandy Grounds Regional Park), a natural point of communication between the Mar Menor and the Mediterranean Sea, it being considered a relevant factor to the conservation of this area.

[32] Santos et al, 2000. Competitividad y medio ambiente en la región de Murcia: Oportunidades y retos para la actividad económica y las empresas derivadas de la nueva normativa ambiental.

The use of certain nets in the Mediterranean littoral strip, such as trawler fishing, in sensitive and highly valuable areas, brings about the elimination of important habitats such as the mäerl bottoms.

The range of actions taken by the Department of Agriculture, Water Resources and the Environment, includes the Master Plan for the restoration of the coastal strip, whose purpose it is to protect the littoral ecosystems which are natural breeding areas, areas where young fish grow, and areas for the development of species of interest to the fishing industry, with a view to boosting fishing activities, in particular, the traditional ones. Within the CAMP area, the establishment in 1995 must be mentioned of the Cabo de Palos - Islas Hormigas Marine Reserve for the purpose of protecting marine communities and populations of interest to the fishing industry, in such a way as to guarantee the existence of breeders and to act as a place for the export of eggs, larvae, juveniles and adults.

The location of artificial reefs serves the purposes of achieving an increase in and the conservation of fishing resources and the protection of the *Posidonia oceanica* prairie from the destructive action of trawler fishing. There are two reefs in the marine strip: an attraction - concentration one in the en Cabo de Palos area, and an anti - trawler fishing one in front of Calblanque.

Within the range of actions aimed at achieving the conservation of fishing resources and the recovery of fishing grounds used by trawlers, temporary closed seasons have been established for the trawling and fence fishing fleets.

AQUICULTURE

Aquiculture has been enjoying a boom in the region's littoral area since the last decade. Much controversy has been created as a result of this activity in scientific and social circles. Nowadays, and within the project's area, there is a concession for the farming of gilthead and sea bass; another for gilthead and tuna fish and two temporary authorizations focused on an aquiculture estate for the fattering blue fin tuna fish. The development of this sector in the area requires a survey on carrying capacity and on the monitoring of the effects created in the marine environment, with a view to avoiding probable risks to the habitats.

TOURIST SECTOR

Tourism is the other major economic sector in the environment of the Mar Menor lagoon. The sector's growth and, above all, the lack of any planning and regulation incorporating environmental criteria, has created landscape impacts on the area, having, at the same time, given rise to a great demand for resources and increased the generation of waste being markedly seasonal in character. The inappropriate management of that waste has brought about important repercussions on the Mar Menor, by contributing in a basic way to the eutrophication of the lagoon.

The demand for infrastructures, mainly fostered by this sector, is occasionally on a collision course with the conservation of the Mar Menor environment. Of all these infrastructures the one having created the greatest changes in the Mar Menor lagoon was the opening of the Estacio canal, as a link between the Mediterranean Sea and the lagoon, which has brought about the lagoon's "Mediterraneization" process. The dredging operations, along with the land filling for the creation of new beaches in a lacustrine environment, one, by definition, lacking large beaches, in conjunction with the construction of promenades and harbours linked with the expansion of urban areas, have caused the modification of the characteristics of the lagoon's bottom and the communities associated with it. On the other hand, the increase in infrastructures and the occupation of public domain have resulted in provoking an alteration of the hydrographical basin, increasing the natural risks, mainly, the risk of flooding.

Recreational and tourist activities exert a strong pressure on the area and the environment, specially during summertime. The most direct effects are the degradation of habitats by trampling and alterations of their characteristics by dumping of garbage, spillage, pollution, etc.; as well as subjecting the associated species to diverse types of nuisance.

Many of these undesired effects on the environment have a negative repercussion, in turn, on the tourist sector itself.

MINING ACTIVITY[33]

From time immemorial different types of mineral substances have been exploited in the Sierra de Cartagena and although these activities have now come to an end, they are still causing effects on the Mar Menor lagoon. The alteration the natural environment has been subjected to includes a wide range of environmental problems: risks of cave - in and landslides in adverse climatic conditions, problems related to air, soil and continental water pollution, resulting, in the main, from fine particles of silica and metallic sulphides being carried away.

There are also extractive exploitations of building materials and marble in Cabezo Gordo which have altered its natural morphology and have created an alteration of the landscape by modifying its constituent elements (morphology, orography, vegetations etc.).

INDUSTRIAL ACTIVITY

Industrial activities require land, just as the expansion of urban areas, although such land has characteristics of its own. Industrial land is located in areas hardly attractive from a residential standpoint. In addition to the demand for land, the industrial activity can cause waste - management and cleaning - up problems giving rise to pollution, mainly of continental waters, when the waste they receive is hardly cleansed or not at all.

TOWN PLANNING

The economic development linked with the expansion of town planning has determined the territorial organization currently existing in this area of the coastline. Urban expansion is a process of change in the use of land and, being specific, the change undergone by the lagoon's coastline over the last few years, with the increase in the occupation of land has provoked the disappearance of natural habitats and unique ecosystems such as coastal dunes, coastal lagoons, saline grounds, etc. The overcrowding of land in the areas of influence of public domains, has a repercussion on the increase in natural risk associated with it (flooding due to the rising of sea waters or to freshets, tidal waves, climatic change, etc.). The disappearance also takes place of traditional town architecture, being substituted by a modern architecture whose identification signs are neither defined nor capable of integration into the environment.

Associated with the expansion of urban areas is the development of large infrastructures, which may bring about the fragmentation of habitats and landscapes. In the area, the main infrastructures contributing to fragmentation are i) The great North - South axis running from the province of Albacete to Cartagena through the N-301 national road; ii) The great NE - SW axis running from the province of Alicante to the province of Almería along the Mediterranean Motorway and Dual Carriageway. iii) The division of the Campo de Cartagena by the Alicante dual carriageway and by the fast road to La Manga. iv) The Canals of the River Tagus - River Segura Water Transfer System (Left bank from El Azud de Ojós to the province of Alicante).

In addition, one of the sources of pollution in the lagoon has been the urban waste coming from the towns and tourist centres in the surrounding area together with the dumping of rubble and garbage.

2.5.2. Social and economic development trends and their incidence on the environment

In this section the foreseeable social and economic trends are analysed that may derive from the evolution of the current situation and the formulation of policies, strategies and future actions for the "Mar Menor and its area of influence CAMP".

1.- The area's social and economic development:

- Trend towards the increase in the number of residents as a result of the flow of immigrants attracted by employment opportunities, the increase in the number of foreign residents due to the mildness of the weather, and in some municipalities to a high birth rate. In addition, increase in the number of seasonal population deriving from the growing tourist activity and the growth in the number of second homes.

[33] González Gómez I y Baños Páez, P. 1987. Problemática de Portmán. Asociación de Naturalistas del Sureste (ANSE).

- Trend towards the development of settlements: expansion of the first - home and the second - home markets in littoral as well as in interior areas, due to the scarcity of land in the urban areas and to the betterment of the habitability they offer as against urban congestion.
- Trend towards the search for new areas for urban development by going deeper into the interior with a view to boosting the coastline's tourist business, by taking advantage of new development and market opportunities (first home for retired foreigners; second home for foreigners, etc.).
- The new industrial estates are differentiating themselves from residential areas and their public services, which should have a favourable repercussion on the reduction in the size of the environmental problems they generate.
- Increase in the concentration of land plots and the level of agricultural technification, and consolidation of the aquiculture sector, while, on the other hand, a regressive trend is foreseen in the traditional uses of land and in the most extensive uses, such as shepherding, traditional agriculture, etc.
- The construction and improvement in communication infrastructures in the CAMP area, required by the expansion of tourism, which are going to facilitate the accessibility to the area for new flows of visitors and goods.

2.- Development of the main sectors:

In greater detail the trends are analysed of the main sectors experiencing growth in the area, and some of the needs and opportunities that will arise:

2.1. Urban development sector

The expansion of urban areas with the infrastructures associated with it, deriving from the growth of the tourist business, the second - home market and the immigration into the area, is going to create, among others, the following needs and opportunities:

- *Needs:*
  - Increase in the necessary resources, such as land, water, energy, etc.
  - Increase in the volume of waste and demand for infrastructures for its treatment.
  - Increase in the public services needs (health care, education, sports, etc.) and development of the tertiary sector.
  - Overcoming of possible conflicts due to the use of land and the changes deriving from the urban development of agricultural and natural land, by adjusting the uses of land to the area's carrying capacity and its potential for harbouring different activities.
  - Increase in the size of natural areas, for relaxation and recreation.
- Opportunities:
  - Boost to the economy and employment opportunities
  - Cultural and social enrichment through the integration of the immigrant population.
  - Environmental adjustment and sustainability of the urban development, by favouring its compatibility with other sectors and the integration of the landscape.
  - The area's sustainable development, by means of the implementation in the municipalities of the "Local Agendas 21".

2.2. Tourist sector

- Diversification of the tourist services on offer, through the complementariness between the sun - and - beach tourism and the sport installations and infrastructures (golf courses, marinas, etc.) and the appreciation of the area's natural and cultural resources, with the consequent increase in recreational - tourist activities in the protected areas and in the urban - development pressure on the surrounding areas.

- Regulation and fostering of the sector's growth through policies and public actions.

Some of the possible needs and opportunities which would be generated would be the following ones:

- *Needs:*
  - Increase in the size of the work force and need for more resources (land, water, energy, etc.) and the relevant management and supply infrastructures.
  - Increase in the needs for infrastructures (marinas, promenades, road infrastructure, airport, waste treatment, etc.) and public services needs (health care, education, sports, etc.); and development of the tertiary sector (recreational activities, catering, etc.).

- Opportunities:
  - Social and economic boost and employment opportunities.
  - Overcoming the current seasonal character, by diversifying the offer (bathing resorts / spas to give a boost to healthcare tourism, winter tourism for senior citizens, cultural tourism, etc.).
  - Environmental adjustment of the tourist sector and appreciation of the area's natural and cultural resources and its traditional uses and products.

2.3. Agricultural sector:

- Slowing down the rate of increase in the extent of irrigated areas and regression of the more traditional unirrigated agriculture, with the consequent loss of the cultural and natural values associated with it. Reduction in the percentage of agricultural area due to the increase in developed urban area.
- Concentration of land property, increasing technification and the size of the land plots, plus increase in the size of support and produce - processing infrastructures.
- Consolidation and expansion of new, less intensive production systems supported by the UE's common agricultural policy, such as ecological or integrated agriculture, etc.

Some of the possible needs and opportunities which would be generated would be the following ones:

- *Needs:*
  - Increase in the size of the work force and need for more resources such as land, water, energy, etc.
  - Demand for infrastructures for the supply and management of hydrological resources (desalting plants, River Tagus - River Segura Water Transfer System, etc.), waste, etc.
  - More research, training and tools to guarantee the sector's environmental adjustment and competitiveness.
- Opportunities :
  - Social and economic boost and employment opportunities.
  - Environmental adjustment and diversification of the sector to favour a more sustainable development and one adjusted to the area's capabilities to sustain this particular use.

2.4. Fishing and aquiculture sector:

- Trend towards the consolidation of aquiculture and the diversification of the farmed species.
- Preservation of fishing activities, with productions subjected to temporary fluctuations.
- Trend towards the diversification of the fishing sector, with the preservation of traditional methods such as the one used at Las Encañizadas, and possible alternative activities linked with the tourist and recreational sector.

Some of the possible needs and opportunities which would be generated would be the following ones:

Needs:

- More research on the environmental effects and the area's capability to become a base for aquiculture.
- More training and tools for the diversification and environmental adjustment that make it possible for these sectors to be sustainable and competitive.

- Opportunities:
  - Social and economic boost and employment opportunities.
  - Environmental adjustment and diversification of the sector to favour a more sustainable development and one adjusted to the area's capabilities to become a base for this particular use.

Besides, in keeping with what has been stated in paragraph 2.6.1., the following chart shows some of the possible consequences for the conservation of the environment, unless the necessary measures be taken to achieve environmental adjustment and sectorial growth compatible with the area's capability to become a base for each of these activities.

TENDENCY	POSSIBLE CONSEQUENCES FOR THE ENVIRONMENT
Urban area expansion	-Environmental pollution due to the increase in the level of noise, waste and spillage, etc. -Alteration of the hydrographical basin due to the occupation of the territory and changes in the uses of the land, thereby creating an increase in natural risks and loss of cultural communities and values.
Construction and / or enlargement of infrastructures	-Alteration of coastline and hydrographical basin dynamics, due to the occupation and fragmentation of the territory, thereby creating an increase in natural risks and loss of cultural communities and values. -Increase in the area's accessibility, thereby creating traffic and recreational activities that may disturb and change communities and habitats. - Environmental pollution .
Increase in irrigated agriculture and in the level of technification and land - plot concentration in agricultural activities.	-Overexploitation of aquifers and salinization of aquifers and soils. -Alteration of soils, eutrophication of the lagoon and alteration of terrestrial and marine communities due to the intake of fertilizers and phytosanitary products. -Erosion and alteration of the hydrographical basin due to the occupation of the territory and the increase in overflowing water, thereby increasing natural risks to and alteration of communities. -Abandonment of traditional uses and infrastructures, bringing about the loss of cultural values and altering biological and landscape diversity.
Consolidation of aquaculture	-Loss and alteration of habitats and communities due to the increase in nutrients .
Regression of traditional uses	-Loss and alteration of habitats and communities due to the abandonment of uses. -Loss and alteration of cultural values .

There is, therefore, a threat of loss of biological and cultural diversity resulting from the possible disappearance of traditional uses and the effects of the intensification and expansion of the main economic sectors and the infrastructures associated with them. Besides, an inadequate planning and environmental adjustment of the activities could provoke negative effects on those very sectors, due to incompatibility of nearby activities; by surpassing the area's carrying capacity to become a base for these activities or by under - utilizing the potential of the land for certain uses, etc.

According to a study carried out for the Social and Economic Council (CES. 2000. Competitiveness and Environment in the Region of Murcia. Murcia) the inhabitants of the Region of Murcia rate environmental deterioration as the fourth most serious problem after unemployment, use of drugs and consumption of alcohol and public insecurity. The survey revealed that the problem's importance was smaller among the rural population while it was deemed more serious among the better educated strata. In the figure above, based on a survey by the INE on the conditions of housing in Spain, the most serious problem would be the lack of green spaces and the lack of urban cleanliness; that is so even in rural municipalities.

2.6. IDENTIFICATION OF ACTORS. INSTITUTIONAL AND SOCIAL PARTICIPATION

The institutions and social and economic actors having an incidence on the CAMP area will play a fundamental role in the project, from the definition and planning stages to the carrying out of the different actions; to that end a participation process has been set in motion taking the feasibility survey as a starting point.

Participation has been envisaged in the Mar Menor CAMP as a transversal axis, which is the reason why the participation programme is being proposed as one of the project's actions. Such action will be carried out from the stages of diagnosis and formulation of objectives and actions, through the establishment of three commissions (Administrative, Scientific and Technical and Social Participation) in all of which the different actors being able to make a contribution, from their action scope, to the construction of this project, are represented.

Likewise and for the purpose of formalizing this participation instrument, the establishment has been foreseen, by Decree of the Regional Cabinet, of the *Mar Menor and its area of influence Advisory Council* which, being dependent on to the Department of Agriculture, Water Resources and the Environment, will constitute a regional body of an advisory nature and a participative and deliberative character. The Advisory Council will be made up of all three Commissions (Administrative, Scientific and Technical and Social Participation) plus a coordination body whose membership will include representatives of each one of them.

2.6.1. Initial identification of actors

The first step in the implementation of the participation process has been the preliminary analysis and assessment of the social and institutional structure of the Mar Menor CAMP area, and the identification of the actors that must involve themselves in the project (see subsection 1.4.). Next, a list is included of the institutions and bodies each commission will be made up of.

- National, Regional and Local Government
  - State's Administration

    Diverse bodies of the State's General Administration have environmental or sectorial responsibilities within the scope under consideration for the project. Accordingly, to define, launch and put the Mar Menor CAMP project into effect, the participation is expected, at least, of:

    - Ministry of the Environment
      - *General Directorate of Environmental Quality and Assessment*. Its participation is deemed to be basic since it is the PAM's Focal Point.
      - *General Directorate of Nature Conservation*. Due to its responsibilities for Protected Areas and, in particular, bearing in mind that part of the project's area having been included in the list of Specially Protected Areas of Significance to the Mediterranean (ZEPIM).
      - *General Directorate of Coasts*. The responsibilities of this body for matters pertaining to the planning and management of coastal areas, in conjunction with the fact that the project's objectives include the implementation of ICAM tools, justify the need for its participation.
    - Ministry of Agriculture, Fishing and Food
      - *General Secretariat of Marine Fishing*. In view of its responsibilities for sea fishing and in view of the fact that the CAMP area includes the "Cabo de Palos - Islas Hormigas" marine reserve of interest to fishing.
    - Ministry of Defence

- *Ministry of Defence Regional Office*. Bearing in mind that the CAMP terrestrial area includes different areas being the property of this Ministry, along with two exercise ranges in the marine area.

o Government of the Region of Murcia

Bearing in mind the integrational nature of the project, it is deemed necessary that, in addition to the Department of Agriculture, Water Resources and the Environment in its capacity as a promoter, all Departments of the Regional Government be involved:

- *Department of the Presidency*
- *Department of Treasury*
- *Department of Education and Culture*
- *Department of Health*
- *Department of Labour, Consumer Affairs and Social Policy*
- *Department of Economy, Industry and Innovation*
- *Department of Public Works, Housing and Transport*
- *Department of Tourism and Territorial Planning*

o Local Government

In view of the fact that the project's area encompasses the Mar Menor basin, it is necessary to have the participation and support of all local government institutions, for they constitute a key sector being, as they are, the closest level of government to people, problems and solutions.

An invitation to participate has been issued to all eight Local Councils whose municipal areas are totally or partially integrated into the CAMP area: *San Pedro del Pinatar, San Javier, Los Alcázares, Cartagena, Torre Pacheco, Murcia, Fuente Álamo* and *La Unión.*

It must be noticed that practically all the coastal municipalities in the CAMP currently make up the Mar Menor tourist association (San Pedro del Pinatar, San Javier, Los Alcázares and Cartagena), a joint work precedent which provides a great opportunity.

▪ Research Bodies

Several research bodies focus their scientific activity on the CAMP area, carrying out numerous basic and applied research studies. The following bodies have been considered:

o *The University of Murcia and the Cartagena Polytechnic University*.

o *The Murcia Institute for Agrarian and Food Research and Development (IMIDA)*.

o *The Segura Pedology and Applied Biology Centre (CEBAS)*.

o *The Murcia Oceanographic Centre, dependent on the Spanish Institute of Oceanography (IEO)*.

▪ Social actors, production and professional sectors

A wide range of legal entities and associations representing the different social actors and productive actors having an incidence on the project's scope have been identified and will be invited to participate in it:

o Trade Unions:

- *Unión General de Trabajadores (UGT)*
- *Comisiones Obreras (CCOO)*

o Representatives of the farming sector:

- *Coordinadora de Agricultores y Ganaderos-Iniciativa Rural (COAG - IR) [Farmers Union]*

- *Unión de Pequeños Agricultores (UPA) [Farmers Union]*
- *Asociación de Empresarios Agrícolas y Ganaderos (ADEA - ASAJA) [Farming Company]*
- *Federación de Cooperativas Agrarias de Murcia (FECOAM) [Farming coperative]*
- *Local Agricultural Chambers*
- *Comunidad de Regantes del Campo de Cartagena [Community of Irrigated Crop Growers]*
- *Comunidad de Regantes del Mar Menor Sur [Community of Irrigated - Crop Growers]*

o Representatives of the fishing and aquiculture sector:

- *Federation of Fishermen's Guilds*
- *Asociación de Empresarios del Atún de la Región de Murcia (ASETUM) [Association of Tuna - Fish Businessmen]*

o Representatives of the tourist sector:

- *Professional Association of the hotel and Catering Business of Cartagena (HOSTECAR)*
- *Estación Náutica del Mar Menor [Sailing Station]*
- *Professional Associations of Hotels and Tourist Lodgings Enterprises from Costa Cálida (HOSTETUR)*

o Representatives of the business sector:

- *Official Chamber of Commerce, Industry and Navigation of Cartagena*
- *Environment Sector Companies Association of the Región de Murcia (AEMA - RM)*
- *Cartagena Confederation of Business Organizations (COEC)*
- *Federación Regional de Empresarios de la Construcción de Murcia. [Murcia's Construction Enterprisers' Association]*

o Professional Associations:

- *Official College of Biologists*
- *Official College of Agricultural Technical Engineers*
- *Official College of Agricultural Engineers*
- *Official College of Industrial Engineers*
- *Official College of Chemists*
- *Official College of Architects*
- *Official College of Civil Engineers*
- *Official College of Lawyers*

o Associations and foundations for the defence of the environment:

- *Asociación de Naturalistas del Sureste (ANSE)*
- *Ecologistas en Acción de la Región Murciana*
- *Global Nature Foundation*
- *Sierra Minera Foundation*

o Residents' associations:

- *Federation of Residents' Associations of the Region of Murcia*
- *"Fernando Garrido" Federation of Residents' Associations of Cartagena and its District* Residents'.

- Consumers' Associations
  - *Federation of Consumers' and Users' Associations of the Region of Murcia*
- Sports activities associations and federations
  - *Underwater Activities Federation*
  - *Official hunters' Association of Murcia*
  - *Official fishers' Association of Murcia*
- Representative of the media
  - *Journalists' Association of the Region of Murcia*

This list of institutions and bodies has been amplified during the first participation meetings, for the actors did identify and put forward the names of new actors to be integrated into the Commissions (see subparagraph 2.6.3.2.).

2.6.2. Participation process

The participation process did commence with the analysis of the global feasibility of the project and the actions included in it by the representatives of the Local Government bodies from the CAMP area, for their involvement and participation is indispensable, taking as a starting point a first project synthesis document as prepared by the CAMP technical team. To that end, in April 2003, two meetings were convened in which the presentation of the project and the different actions initially suggested took place for the purpose of studying their suitability and selecting those which were deemed to be a priority, as well as identifying new actors to be included in the participation Commissions.

In May 2003, the participation process was enlarged to include the different Commissions (Administrative, Scientific and Technical and Social Participation). The objectives of these meetings were the same as in the meetings held with the Local Government bodies.

Within the frame of action on "Participation, information and communication" (see section 3), we aim at making the objectives and actions accessible to the general public. As a first step, a website has been created (www.carm.es/cma/dgmn/esquema/indice.htm) and an e - mail address has been made available (planmarmenor@listas.carm.es) specific to the Mar Menor CAMP. In this way, every person interested in the Mar Menor CAMP will be able to consult the available information and submitting proposals for the project.

Another of the objectives of the participation process is keeping continuous communication among the participants in the different Commissions. To that end, the e - mail is being used as an information tool to keep everyone abreast of developments related to the project and to allow the participants to make any suggestion or contribution they deem appropriate on the progress of the project.

2.6.3. Results achieved and current state of the participation process

The participation process as carried out thus far has entailed inviting a total of sixty - eight bodies and legal entities (eight to the Local Government meetings, twenty - one to the Administrative Commission, twenty - four to the Scientific and Technical Commission and thirty - one to the Participation Commission). The area's Local Government bodies were invited to participate both in the preliminary meetings and in the Administrative and Scientific and Technical Commissions; therefore, total attendance is lower than partial participation in each of the commissions. In total, fifty - six persons did attend the meetings of the representatives of the Local Government bodies and those of the Commissions. Broken down by the group, the participation obtained has been as follows:

Representatives of the Local Government bodies: Eight persons attended the first meeting representing seven Local Councils; in the second meeting, seven persons represented five municipalities.

- Administrative Commission: Twelve persons representing eleven bodies

- Scientific and Technical Commission: Nineteen persons representing seventeen bodies
- Social Participation Commission: Twenty - one persons representing seventeen bodies

As a whole, the participants have shown their support for the Mar Menor CAMP project. In addition, they have made interesting contributions and suggestions related to the membership of the Commissions, along the action lines initially put forward, as well as to the Mar Manor CAMP's difficulties and opportunities. These contributions have been recorded from those attending the participation meetings and through the questionnaires specially designed for that purpose. The results achieved in these meetings are summarised below.

2.6.3.1. Detected difficulties and challenges

During the first meetings held in the course of the participation process, a few difficulties have been identified in the design and operation of the Commissions.

Firstly, the membership of the Commissions is quite large, what may hamper work during the meetings.

Besides, new actors and groups have been identified to be involved in the participation process, which enlarges to a great extent the number of participants in the Commissions (see subparagraph 2.6.3.2.).

On the other hand, to achieve a greater effectiveness in the meetings, legal entities representing a whole range of associations and bodies have been invited, as it is the case with the Federations; however, depending on the way these institutions operate, the information on the CAMP may or may not reach the whole of the associations they represent.

Because of it all, although in the draft version of the Decree establishing the Partitionary Entity the possibility is envisaged of setting up work groups for each of the Commissions, it will be necessary to define and to articulate the mechanisms guaranteeing the involvement of the whole of the associative and productive actors of the CAMP area, as well as that of the Bodies and institutions having responsibilities for the area.

On the other hand, the need has been identified to articulate mechanisms facilitating the coordination between the Mar Menor Partitionary Entity and other Partitionary Entity existing within the regional government.

2.6.3.2. New actors identified

During the meetings held with the representatives of the Local Government bodies and the different Commissions, and during the participation process, suggestions have been made on new bodies and institutions that should be taken into consideration and invited to the Commissions' meetings, since they can play a significant role in the definition of the CAMP.

During the meetings held with the Local Government bodies it was suggested that the Scientific Commission be renamed Scientific and Technical so that it include in its composition the technical level and the professional scope.

Other actors having been identified in the first participation sessions to be integrated into the different Commissions have been:

- Administrative Commission
  - Regional Employment and Training Service dependent on the Department of Labour and Social Policy
  - Segura River Management Agency (Confederación Hidrográfica del Segura)
  - General Directorate of Research and Technological Transfer dependent on the Department of Agriculture, Water Resources and Environment
  - General Directorate of Irrigated Lands and Rural Development dependent on the Department of Agriculturre, Water Resources and Environment

- General Directorate of Stockbreeding and Fishing dependent on the Department of Agriculture, Water Resources and Environment
- General Directorate of Water Resources dependent on the Department of Agriculture, Water Resources and Environment
- General Directorate of Natural Environment dependent on the Department of Agricultre, Water Resources and Environment

- Scientific and Technical Commission
  - The Manager-Conservation of the Salinas y Arenales de San Pedro del Pinatar Regional Park
  - The Manager-Conservation of the Calblanque, Monte de las Cenizas y Peña del Águila Regional Park
  - Technician in charge of the Mar Menor Open Areas and Island Protected Landscape
  - Association of Telecommunications Engineers of the Region of Murcia (AITERM)
  - Official College of Lawyers of Cartagena
  - Official College of Doctors and Graduates in Political Science and Sociology of the Region of Murcia
  - Official College of Mining Engineers of Levant
  - Official College of Technical Mining Engineers
  - Centre for Wetland Research and Conservation
  - Séneca Foundation
  - Spanish Geology and Mining Institute (IGME)
  - Territorial Weather Centre
  - Euro – Mediterranean Hydrotechnics Institute
  - University Institute for Water and Environment
  - Consejo de Agricultura Ecológica de la Región de Murcia (CAERM) [Organic Farming Council of The Región of Murcia)
  - Environment Technological Centre
  - Regional Energy Management Agency (ARGEM)
  - Murcia Region Cleaning – Up Body (ESAMUR)
- Social Participation
  - Asociación Columbares [Citizens' Association]
  - Official Chamber of Commerce, Industry and Navigation of Murcia
  - Association for the Defence of Nature - World Wildlife Fund (ADENA - WWF)
  - Greenpeace
  - International Union for the Conservation of Nature (UICN). Mediterranean Co - operation Centre
  - Spanish Ornithological Society (SEO - Bird life)
  - Spanish Cetacean Society (SEC)
  - Environment Education Centre (CEMACAM)
  - Association for the Integral Development of Campo de Cartagena

- San Pedro del Pinatar Fishers' Union
- Cartagena Fishers' Union

2.6.3.3. CAMP Potential and Challenges

It is believed that the Mar Menor CAMP can contribute positive approaches to sustainable development, as well as being an opportunity to prove the feasibility of the ICAM.

According to the participants, the feasibility of the project is related to the taking of decisions by consensus of the interested parties, which makes it necessary to establish the mechanisms both for the taking of decisions and for the implementation of the agreements.

On the other hand, it was the participants' opinion that CAMP - related difficulties may arise when actions are put into effect and, because of that, they deemed it basic to establish the necessary mechanisms to achieve coordination between government bodies and the different social and economic sectors involved.

2.6.3.4. Project's Scope

With regard to the scope of the project, it has been considered interesting that the basin have been included as a functional framework and it has been suggested that actions be promoted aimed at the visitors of the lagoon and its basin as well as at the users of its products.

2.6.3.5. Objectives of the Mar Menor CAMP

With regard to the summary document, the participants have stated that it is necessary to establish operational objectives and to relate them to the proposed actions, in addition to specifying the origin of financial resources and the amount of same.

In general, the action lines suggested are considered to be feasible, although it has been pointed out that there may be incompatibilities among them.

On the other hand, it has been stated that it is necessary to lay down specific measures to be immediately implemented in the Mar Menor area.

2.6.3.6. Proposed lines of action

Although thirteen actions were initially put forward for the Mar Menor CAMP, in the meetings held with the representatives of the local government bodies it was considered that the priority problem of the CAMP area is urban development, for it may affect both the conservation of the environmental values and the performance of the rest of activities, which is the reason why it is suggested that from the CAMP some Guidelines be prepared for the harmonization of the Municipal General Regulation Plans. Besides, since all Municipalities in the CAMP area have signed the Aalborg Charter and have committed themselves to the implementation of the Local Agenda 21, the municipal representatives suggested that the preparation of Guidelines for the Agenda 21 in the CAMP.

These actions were included in the summary document that has been analysed by the different Commissions in the participation meetings held.

Bearing in mind the opinion of the participants in the process, the CAMP has been set forth with three major action frameworks:

- Participation, information and communication
- Training
- Comprehensive Plan for the sustainable development of Mar Menor and its Area of Influence (to include the rest of actions initially set forth)

Besides, the following lines and actions have been put forward for the different action frameworks :

TRAINING

- To make an inventory of training needs and training levels.
- To coordinate the whole of existing training resources. Since there already exists a body for the General Coordination of Professional Training and there are other Regional Participatory Entity, it is necessary to establish coordination channels.
- To integrate the CAMP training actions into the Professional Training Plan
- At the level of educational centres:
  - To revitalise the Los Urrutias nature seminar and to review its potential for the project
  - To implement the School Agendas 21 and to support the preparation of the Local Agenda 21
  - To hold specific training symposia for the promotion - construction sector on sanitation and purification of sewage which could be organised by the Murcia Region Cleaning - Up Body (ESAMUR)
- For the training activities the support can be relied on by the Environmental Quality School, dependent on the Department of Agriculture, Water Resources and the Environment
- Training actions aimed at producers and consumers

INFORMATION AND COMMUNICATION

- Communication and information programme aimed at visitors and users of the Mar Menor and its area.

PLAN FOR THE SUSTAINABLE DEVELOPMENT OF THE MAR MENOR AND ITS AREA OF INFLUENCE

- Systemic analysis of sustainability
  - To analyse the CAMP area carrying capacity for the different economic activities
  - To integrate the results of the Regional Sustainable Development Strategy into the Mar Menor CAMP, for it would entail their implementation within a specific area. On the other hand, results obtained in the CAMP would be integrated into the Regional Sustainable Development Strategy
- Territorial and town - planning regulation
  - Regulation of town - planning activities
  - Environmental adjustment of current and planned infrastructures (airport, fishing harbours, etc.)
  - Landscape conservation and restoration (landscape landmarks, landscape architecture, regulation of uses, etc.)
  - Review of the repercussion of the regeneration of beaches and analysis of projects planned for the Mar Menor
  - Review of the modifications of the agricultural environment in the light of town - planning expectations
  - Analysis of the Mar Menor Sanitation and Purification Plan
- Plan for the sustainability of the tourist sector
  - Environmental adjustment (energy savings, use of renewable sources of energy, bioclimatic buildings, waste management, etc.)
- Plan for the sustainability of the farming sector
  - Ecological efficiency in the Campo de Cartagena farming sector

- Search for technical and financial solutions to the introduction of new farming production systems
- Review of the characteristics and suitability of the sewage works' excess water with a view to its use in agriculture

- Preservation and fomentation of traditional uses and historical values
  - Architectural values shall be included in this action
- Conservation
  - Integration of all nature conservation policies taking into consideration the confluence of protection concepts within the CAMP area
  - Review of the impacts currently being sustained by the salt marshes and the crypto - wetlands in the Mar Menor environment, as well as the evolution of their plant communities and the soil - vegetation dynamics
- Regulatory scheme
  - Review of the regulatory scheme currently in force with a view to laying down a single regulation and to solve the current regulatory dispersion, for the purpose of giving explicit form within a single legal framework to the implementation of the CAMP and its lines of action

On the basis of these proposals, the prioritisation of lines and actions to be put forward for the implementation of the CAMP will be carried out.

2.7. GLOBAL FRAMEWORK AND NATURE OF THE "MAR MENOR AND ITS AREA OF INFLUENCE" PROJECT

The "Mar Menor and its area of influence" CAMP does promote sustainable development in the area, by making compatible the protection and conservation of natural and cultural resources with the social and economic development, based on the implementation of the ICAM ruling principles and the objectives and criteria of the MAP Programme for the Management of Coastal Areas (CAMP).

The ICAM principles have been adopted at UE level through the "Recommendation on the implementation of the integrated management of coastal areas in Europe" (2002/413/EC); its implementation process having been started in Spain by means of meetings held with the Self - Governing Regions for devising and carrying out, at a later stage, the activities envisaged in the recommendation.

On the other hand, the Mar Menor basin would fit in with the new approach known as ICARM (*Integrated Coastal Area and River Basin Management*), as adopted by the PAP - RAC following indications from PNUMA for it to include in its activities in matters pertaining to ICAM the emptying or neighbouring river basins.

Besides, there are other reference documents used in the preparation of the CAMP:

- On a national level:
  - Spanish Strategy for Sustainable Development (at the preparation stage)
  - Spanish Strategy for the Conservation and Sustainable Use of Biological Diversity (awaiting approval).
  - Spanish Forestal Strategy and Spanish Forestal Plan.
  - Spanish Strategic Plan for the Conservation and rational use of wetlands.
  - White Paper on Environmental Education in Spain.
- On a regional level:
  - 2000 - 2006 Strategic Plan for the Development of the Region of Murcia.

- Regional Strategy for Sustainable Development (at the preparation stage)
- Spanish Strategy for the Conservation and Sustainable Use of Biological Diversity (awaiting approval).
- Forestal Strategy of the Region of Murcia (awaiting approval).
- Regional Environmental Education Strategy (awaiting approval).

o On a municipal level:

- General Municipal Regulation Plans
- Local Agendas 21 (at the preparation stage)

The **objectives put forward** for the "Mar Menor CAMP", formulated on the basis of the diagnosis and within the framework of objectives and criteria for the CAMP projects, are as follows:

- To contribute to achieve a **sustainable development model** in the area by means of planning and management, under the CAMP projects' ruling principles.
- To assess the **current situation, the trends and future possible scenarios** of the spatial structure and the interrelationships between development and environment; suggesting instruments (criteria, guidelines, actions, etc.) that may contribute to solve the main problems identified.
- To enhance the **sustainability and compatibility** with the conservation of the natural environment of the area's main economic sectors (agriculture, fishing, tourism and urban development).
- To make a contribution to the **conservation and management** of the natural and cultural resources.
- To enhance the **coordination** mechanisms between the different government bodies and the area's social and economic actors for the compatibility and integrability of the policies implemented and the actions carried out.
- To increase **public awareness and participation** in the policies and activities aimed at the conservation and the sustainable use of resources.
- To improve the **training** of the area's management teams, the different economic sectors and the local populations to achieve the project's objectives and enable the launch of other initiatives related to conservation and sustainability.

On the other hand, in the formulation of these general objectives and in the selection and specification of the appropriate "action frameworks" to be put into effect by the project, the following **criteria and characteristics specific to the area** have been taken into consideration:

1. With regard to the **representative character** of the area the following must be pointed out:
   - Congestion and high level of urban development deriving from tourist - sector pressure
   - Agricultural intensification
   - Areas facing pollution - related problems
   - Highly fragile natural areas: by way of example, the existence must emphasised of the Specially Protected Area of Significance to the Mediterranean (**ZEPIM**) *"Mar Menor and Mediterranean oriental coastal area of the Region of Murcia".*
2. With regard to the **type and significance** of problems common to al coastal areas, the following challenges or priority needs have been detected that have to be taken into consideration:
   - Prospective systemic surveys
   - Integrated management for sustainable development

- Interrelationships between development and environment
- Matters pertaining to target sectors (tourism, agriculture, fishing, aquiculture)
- Areas having a high natural value or other values
- Erosion and desertification
- Risks, natural as well as originating from human activities
- Pollution reduction and control
- Waste management
- Hydrological resources management

In this regard, we must bear in mind that both the analysis of problems and "fields of action" and the CAMP as a whole, are also being debated in the participation process already underway. In this regard, the CAMP will have to be reoriented as it is put into effect to allow the inclusion of all aspects approved by consensus in the aforesaid participation process, thus enabling an effective involvement by the area's social and economic actors. Accordingly, the main advantage of this process must be highlighted, namely bringing to light the interests of the social actors or the interested parties since the project's feasibility diagnosis stage.

3. Availability and need for **data and information**

   Even though there is ample information on the area under review, analysed in the preceding sections, there is also a specific insufficiency of information on certain matters, and, specially, on the interactions between the area and the natural processes and resources. At the same time, there exists a remarkable shortage of coordination between institutions and between the different bodies, resulting, above all, in dispersion of knowledge and difficulty in putting it into practice.

   On the other hand, the project is fostering the gathering of all existing information, the previously existing and that generated by the very project, for the purpose of increasing the knowledge of the area and facilitating access to it, of applying it to the management and the carrying out of sustainable actions and policies.

4. **Common interest** in the results expected from the Project and its applicability

   With regard to this aspect it must be pointed out that this GICZ project is a pioneering one in Spain and in the UE, and, therefore, can become a point of reference in the implementation of the principles of the "Recommendation on the implementation of private management of Europe's coastal areas".

   On the other hand, the CAMP may contribute to infuse the "2000 - 2006 Strategic Development Plan for the Region de Murcia" and the rest of programmes and projects carried out in the area with a sustainable character, by means of the corresponding integration and coordination mechanisms already in operation, through the establishment of an Advisory Council for the Mar Menor and its area of influence.

5. **Related to institutional involvement:**

   - Express political will by the National Government to put the Project into effect.
   - Necessary degree of institutional capability and organization for putting the Project into effect
   - Willingness to cooperate with the Project, including the degree of involvement by local and national authorities and institutions, supply of information and data on the required logistics and other necessary means of support.
   - Willingness to assess and subsequently monitor the Project, and reiteration

As it has already been analysed in subsection 2.6. "*Identification of Actors. Institutional and Social Participation"*, there is a political will to bring the project to completion, made clear locally, regionally

and nationally. On a national level such will has been expressed with the presentation of the “Proposal document for the Mar Menor and its area of influence CAMP”, the start of whose feasibility study procedure was supported by the contracting parties to the Barcelona Agreement in October 2002.

Possible contribution and involvement by these authorities and government bodies, as well as by the area’s social and economic actors, are being analysed in the participation process, where a willingness to cooperate has already been made clear in these meetings and, subsequently, through the “Mar Menor and its area of influence Advisory Council”.

Other aspects which have been considered are the integrability of actions put forward and their expected results into the project itself and into the strategies and policies related to the sustainable management of coastal areas. At the same time , the existence of a set of problems common to many Mediterranean coastal areas makes it possible for the project’s processes, tools and results to be considered or replicated in other projects.

3. ACTIVITIES FOR THE "MAR MENOR AND ITS AREA OF INFLUENCE" CAMP

3.1. BACKGROUND TO THE PROPOSAL FOR ACTIONS TO BE CARRIED OUT AS PART OF THE PROJECT

Initially, thirteen actions were proposed for the Mar Menor CAMP, included in the "CAMP Proposal Document" presented in July 2002, the start of whose feasibility study procedure was supported by the contracting parties to the Barcelona Agreement in October 2002. **The actions were laid down as a response to the pre - diagnosis of the main problems and opportunities identified, and to the principles and objectives as established for the project**. The proposed actions were as follows:

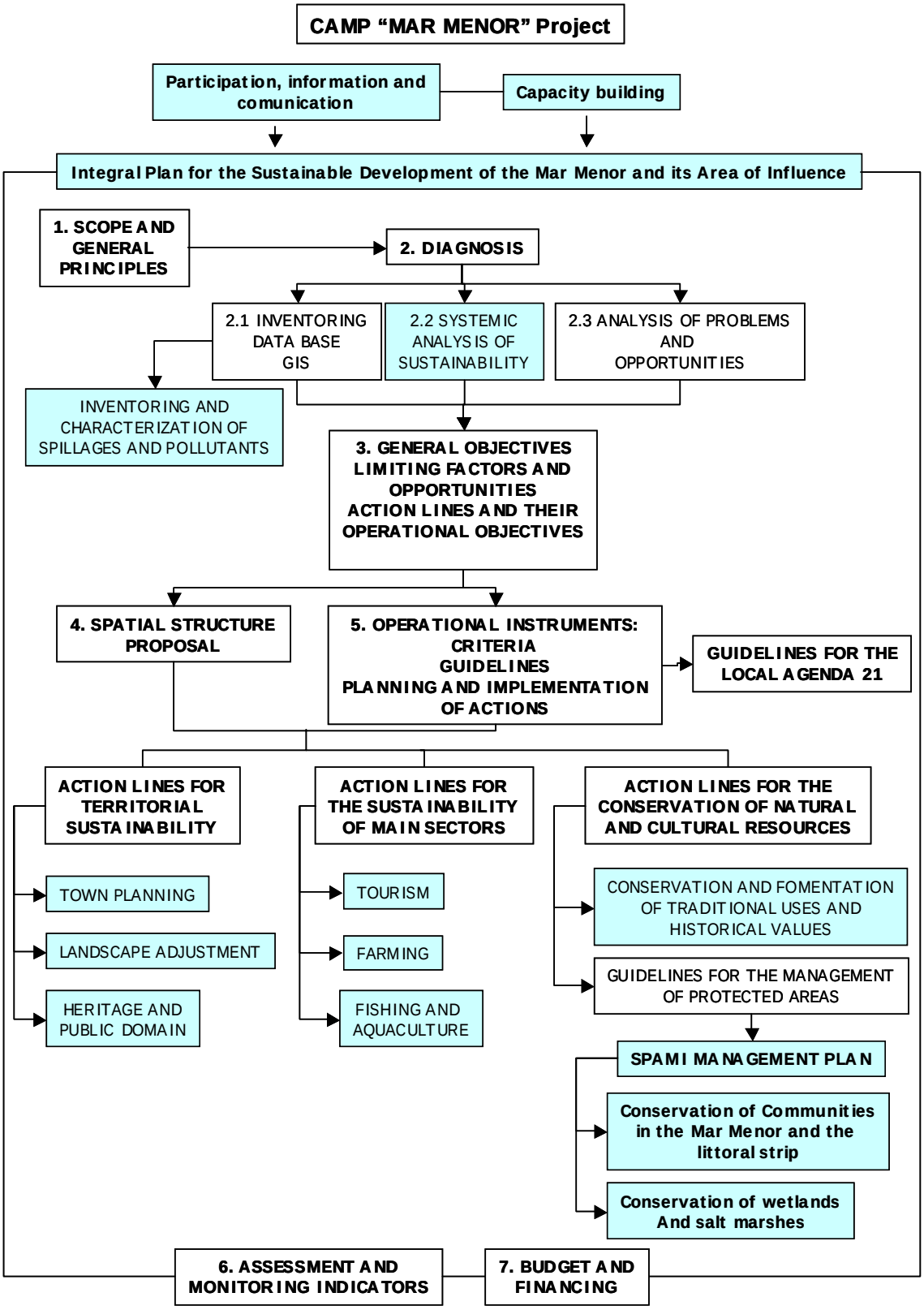
CAMP Document Proposal for Actions (July 2002)
Action 1. Systemic analysis of sustainability
Action 2. Participation programme
Action 3. Preparation of a ZEPIM regulation and management plan
Action 4. Development of the comprehensive plan for the sustainable development of the Mar Menor and its area of influence
Action 5. Inventory and characterization of the main spillages and pollutants affecting the lagoon and the marine environment. Preparation of a monitoring programme
Action 6. Actions aimed at the tourist sector
Action 7. Actions aimed at the farming sector
Action 8. Actions aimed at the fishing and aquaculture sector
Action 9. Review, monitoring and preparation Plans for the Handling and Management of communities in the Mar Menor and the littoral strip
Action 10. Landscape and urban - development regulation
Action 11. Public Domain
Action 12. Training
Action 13. Preservation and fomentation of traditional uses and historical values

From that moment on, an institutional and social participation process was started which has enabled progress in the methodology for the integration and presentation of these actions; three action frameworks having been finally established that incorporate all the actions initially proposed and others having arisen during the participation process.

The following chart shows in the darker colour the actions initially put forward and the way they have been integrated into a methodology envisaging three action frameworks to be put into effect as a part of the CAMP:

- **Horizontal activities and those supporting the implementation of the project:**
  1. Participation, information and communication.
  2. Training
- **Activity applicable to the whole scope of the project:**
  3. Comprehensive Plan for the Sustainable Development of the Mar Menor and its area of influence

Figure 3.1: "Mar Menor and its area of influence" CAMP.



3.2. SELECTION OF ACTION FRAMEWORKS

The selection of the **action frameworks** and their corresponding stages and **lines of action** has been based on their meeting the criteria typical of the CAMPs:

According to these criteria, three action frameworks have been set forth that incorporate the following stages and action lines:

- ***Horizontal action frameworks and those supporting the implementation of the project:***

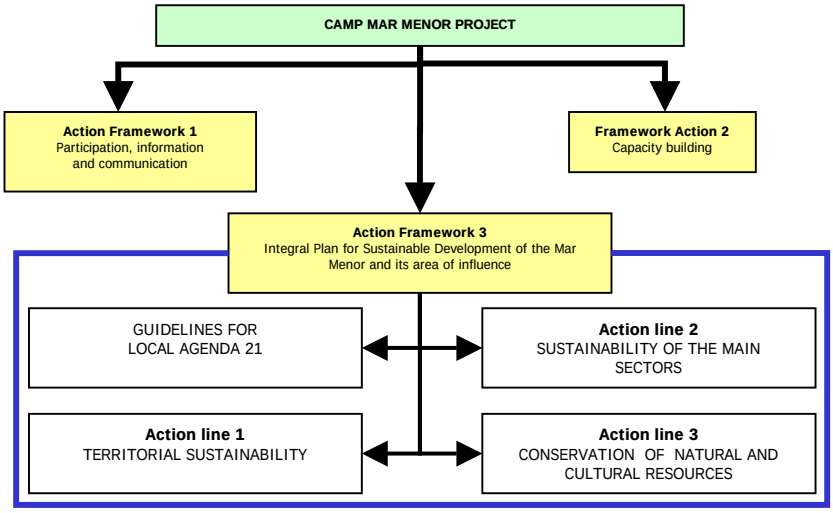
  1. Participation, information and communication.

  2. Training

- ***Action framework applicable to the whole scope of the project:***

  3. "Integral Plan for Sustainable Development of the Mar Menor and its area of influence"

Figure 3.2: Action Frameworks and Action Lines of the "Mar Menor and its area of influence "CAMP.



3.3. INFORMATION ON AND RESULTS OF THE ACTION FRAMEWORKS AND THEIR LINES OF ACTION

This section includes a first proposal concerning the characteristics of the action frameworks and their corresponding lines of action, although the fact must be taken into consideration that in the participation process the specific contents of each one of them will be analysed and discussed. Limiting factors and existing opportunities to achieve the project's general objectives will be taken into account, with a view to laying down certain operational objectives and results.

Sequentially, the *methodological process* would be as follows:

- General objectives to be achieved with the project
- Limiting factors and opportunities to achieve the general objectives
- Operational objectives and specific results to be achieved in each action framework and line of action during the life of the plan
- Specific actions and stages within each action framework and line of action to achieve the operational objectives.

3.3.1. Information on the action frameworks and their lines of action

3.3.1.1. **Action Framework 1**: Participation, information and communication

Starting from the moment when the "CAMP Proposal Document" submitted in July 2002 did receive the support for the start of its feasibility study procedure from the contracting parties to the Barcelona Agreement in October 2002, a participation process was set in motion whose results as achieved up to the present time appear in subsection 2.6.

The participation process shall continue in parallel to the development and implementation of the project and its actions through the agency of the Advisory Council to be formally established.

Likewise, it is deemed to be necessary to carry out a series of information and communication actions aimed at the area's local population and the social and economic actors.

General objectives to which response is given

- To enhance the coordination mechanisms between the different government bodies and the area's social and economic actors for the compatibility and integrability of the policies implemented and the actions carried out.
- To increase **public awareness and participation** in the policies and activities aimed at the conservation and the sustainable use of resources.
- To cooperate in devising the CAMP itself.
- To divulgate the principles of the ICAM and those of the project itself.

Operational objectives

- To establish and start the work of the "Mar Menor and its area of influence Advisory Council", made up of three Commissions (Administrative Coordination, Scientific and Technical and Social Participation) plus a coordination body.
- To lay down criteria and establish mechanisms for the compatibility, integrability and coordination of the different actions carried out by the Government bodies and the area's social and economic actors.
- To succeed in having the involved actors to commit themselves to the carrying out of the actions.
- To set mechanisms and activities in motion enabling social participation and increasing social awareness on conservation and sustainability of the development (access to information and participation through the Internet, information points, etc.)

Action proposals

1. To hold periodical participation meetings to specify the contents, resources and actors involved in each activity and line of action.
2. To open an information and participation point both through the Internet and in person.
3. To establish, by Decree of the Regional Cabinet, the "Mar Menor and its area of influence Advisory Council" (see Annex V)
4. To have the Advisory Council to prepare proposals for the coordination and integrability of actions to be carried out in the area; as well as for information on projects and initiatives to be put into effect in their field of action.
5. To formulate and implement participation, information and social communication activities.

Estimated cost: 186,760 Euro

Action Establishment of the Secretariat for the preparation of the CAMP and Information Office	Budget (€)	VAT (@ 16%)	Total Budget
Providing technical assistance to support coordination and participation	45,000	7,200	52,200
Two persons for the Information / Communication Office	96,000	15,360	111,360
Stationery for the Information / Communication Office	6,000	960	6,960
Design and maintenance of the website	6,000	960	6,960
Brochures and divulgatory materials	8,000	1,280	9,280
TOTAL	161,000	25,760	**186,760**

3.3.1.2. **Action Framework 2**: Training

This action establishes training actions aimed at providing the different actors in the area with appropriate qualifications, both in the management and in the social and economic fields.

The objective is the development and consolidation of the training of the area's and the different social and economic sectors' technical teams as well as the local population, by promoting action models in keeping with the protection of the environment, and with the launch of initiatives aimed at the ICAM and at achieving sustainable social and economic development.

General objectives to which response is given

- To improve the training of the area's management teams, of the different social and economic sectors and of the local population, in order to achieve the project's objectives and to enable the launch of other initiatives related to conservation and sustainability.

Operational objectives

- To further the training in knowledge and technologies for the sustainability and environmental adjustment of the different social and economic sectors playing a role in the area.
- To complement the rest of the plan's actions and to make it possible for them to achieve their objectives.
- To enhance the training of the area's management teams to enable them to utilize and to make the most of the tools and the knowledge generated by the project.

Action proposals

1. To analyse each sector with a view to identifying the training needs and opportunities related to the operational objectives of this particular line of action.
2. To identify and provide the necessary human and material resources to carry out the training actions.
3. To formulate and carry out training - related actions.

Estimated cost: 254,040 euros

Action	Budget (€)	VAT (@ 16%)	Total Budget
Providing technical assistance to support coordination	45,000	7,200	52,200
Prospective surveys of training needs by the sector	72,000	11,520	83,520
Devising of training modules	54,000	8,640	62,640
Preparation of training and awareness symposia for the implementation of the CAMP	48,000	7,680	55,680
TOTAL	219,000	35,040	**254,040**

3.3.1.3. **Action Framework 3**: "Comprehensive plan for the sustainable development of the Mar Menor and its area of influence "

The Plan's objective will be the promotion of sustainability in the area, by making compatible its social and economic development with the conservation and restoration of natural and cultural resources, by means of a coordinated action undertaken by the different government bodies and the social and economic actors.

General objectives to which response is given

- To contribute to achieve a sustainable model of development for the area by means of planning and management, in keeping with the ruling principles of the CAMP projects.
- To assess the current situation, the trends and the possible future scenarios of the spatial structure and the interactions between development and the environment, by proposing instruments (criteria, guidelines, actions, etc.) contributing to solve the problems identified.
- To enhance the sustainability and compatibility with the conservation of the natural environment of the area's main economic sectors (agriculture, fishing, tourism and urban development).
- To make a contribution to the conservation and management of the natural and cultural resources.

Operational objectives

- To provide an instrument for the comprehensive planning and management of the whole area, so that, by taking as a starting point the assessment of the current situation and the investigation of possible scenarios, it makes it possible to establish a spatial structure proposal and some action operational instruments.
- To establish lines of action for the sustainability of the territory and the main sectors; and the conservation and management of natural and cultural resources.
- To increase the knowledge of the area and the access to this information for it to be applied to the management and the development of sustainable actions and policies.

Stages

I. Preparation of the Plan (see contents in Figure 3.1).

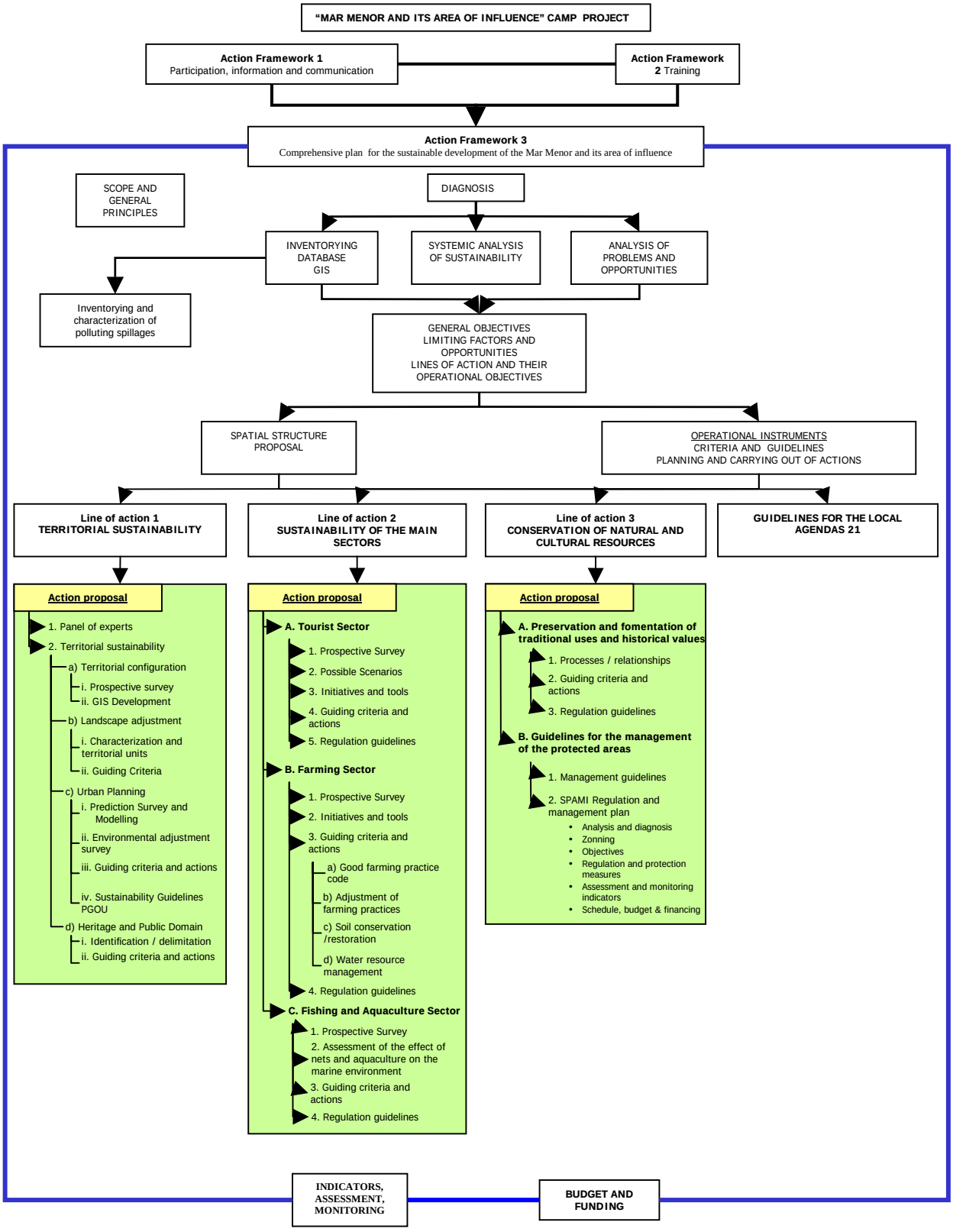
II. Approval of the document.

III. Implementation of same by the different sectors and government bodies.

Estimated cost: 483,720 Euro

Action	Budget (€)	VAT (@ 16%)	Total Budget
Technical assistance to support coordination	45,000	7,200	52,200
Compilation and gathering of information	9,000	1,440	10,440
Inventorying and collection of data	126,000	20,160	146,160
Preparation of a database	21,000	3,360	24,360
Preparation of GIS cartography / application	48,000	7,680	55,680
Analysis and diagnosis	60.000	9.600	69.600
Financial study	36,000	5,760	41,760
Preparation of sectorial guidelines and action programmes	36,000	5,760	41,760
Writing the Action Plan	10,800	1,728	12,528
Edition	7,200	1,152	8,352
Support to public information and participation	18,000	2,880	20,880
TOTAL	417,000	66,720	**483,720**

Figure 3.3: Action framework 3: "Comprehensive plan for the sustainable development of the Mar Menor and its area of influence ".



Lines of action

Line of action 1: Territorial sustainability

Inadequate territorial planning and regulation of the uses of land and of the activities and infrastructures associated with them can bring about a deterioration of the natural environment, the increase in natural risks and the loss of quality of life. In addition, it may provoke important overall economic losses deriving from the ear - marking of land for inadequate uses when it had the potential for other activities and from generating a lack of sector sustainability or competitiveness.

General objectives to which response is given

- To assess the **current situation, the trends and the possible future scenarios of the spatial structure** and the interactions between development and the environment, by proposing instruments (criteria, guidelines, actions, etc.) contributing to solve the problems identified.
- To enhance the sustainability and compatibility with the conservation of the natural environment of the area's main economic sectors (farming, fishing, tourism and **urban development**).

Operational objectives

- To know the situation, evolution and possible scenarios of land uses.
- Laying down criteria for the landscape adjustment of land uses and the infrastructures associated with them.
- To achieve the environmental adjustment, sustainability and competitiveness of the area's urban development sector.
- To conserve and / or to restore the public domain, by promoting the knowledge of the benefits generated by its preservation.

Action proposals

1. Appointment of a **panel of experts** to put the action into effect.
2. Development of four basic aspects of territorial sustainability:

   a) *The territorial configuration of land uses:*

   i. To carry out a **prospective**, comparative and modelling **survey**, using teledetection techniques, of the territorial configuration of land uses.

   ii. Formulation of a **SIG development** relying on teledetection for the quantification and monitoring of land uses, their changes and practices as related to economic activities carried out in the Project's area.

   b) *The landscape adjustment of land uses:*

   i. Landscape - environmental **characterization** of the area and its division into **territorial units** for the preservation and improvement of its aesthetic qualities.

   ii. Formulation of **guiding criteria** for the landscape adjustment of land uses and the infrastructures associated with them.

   c) *Town planning*

   i. Analysis by means of **predictive surveys and modelling** of possible town - planning scenarios (locations and design alternatives) being more compatible from an environmental and landscape standpoint.

   ii. **Review of the environmental adjustment** and landscape integration of the current town - planning configuration and the conurbation between of the municipalities of San Pedro del Pinatar, San Javier, Los Alcázares and Cartagena.

iii. Formulation of **guiding criteria** and implementation of initiatives and tools to enhance the environmental adjustment of the urban development activity (use of renewable sources of energy, energy - saving measures, waste management, etc.) and the infrastructures associated with it (location and designs, measures to correct the effects on the environment: barrier effect and fragmentation of ecosystems, etc.).

iv. Development of **sustainability guidelines in the General Municipal Regulation Plans** and the Partial Development Plans, by advancing these instruments as a framework for the integration of all sectorial policies and, in particular, for the conservation of biological diversity. Criteria will be laid down for the designation of areas of importance to biodiversity as unsuitable for urban development from a local and district standpoint, and for the granting of licenses in the case of land suitable for urban development.

d) Heritage and public domain

i. To carry out a **survey identifying and delimiting public land**, considering as its most important constituent elements livestock ways, public - owned woodlands, the hydrological public domain and the marine - terrestrial public domain; and analysing its current situation and potential, putting forward the necessary measures aimed at its conservation and / or restoration.

ii. Formulation of **guiding criteria and actions** to be implemented for its conservation and / or restoration, taking its demarcation and betterment as a starting point.

Line of action 2: Sustainability of the main sectors

A. Sustainability of the tourist sector

Tourism is a sector of high importance to the area and one in continuous growth over the last few decades. However, the lack of planning and regulation concerning this activity and the infrastructures associated with it (housing estates, marinas, recreation and leisure services, etc.) incorporating environmental criteria is bringing about important negative effects, direct as well as indirect, on the area and even on the sustainability of the very sector.

General objectives to which response is given

- To enhance the sustainability and compatibility with the conservation of the natural environment of the area's main economic sectors (farming, fishing, **tourism** and urban development).

Operational objectives

- To achieve the environmental adjustment and sustainable development of the sector in the area.
- To adjust the growth of the sector to the area's capability to sustain different tourist activities.
- To enhance the sector's competitiveness and sustainability.

Action proposal

1. To carry out a **prospective survey** of the sector to know its current situation, its environmental effects, its trends or its foreseeable evolution and the area's carrying capacity to sustain the different tourist activities.
2. To analyse the different **possible scenarios**, identifying the best alternative to achieve a strategy for the sustainable development of tourism to be implemented by the sector (location of possible actions, projects to be put into effect, etc.).
3. Implementation of **initiatives and tools** for the sustainable development of the tourist industry and the enhancement of the sector's competitiveness (implementation of the European Sustainable Tourism Charter, quality systems, etc.).

4. Formulation of **guiding criteria** for the environmental adjustment of the different tourist activities and the infrastructures associated with them: harbours, beach regeneration, etc.
5. Development **guidelines for the regulation of uses and activities**, specially within the scope of protected areas.

B. Sustainability of the farming sector

Agriculture is the main use the land is put to in the area, which, besides, has undergone a rapid and important transformation. The intensification, the expansion of irrigated crops and the technification experienced over the last few decades have given rise to advances and to social and economic development, but, at the same time, have provoked significant impacts on the terrestrial (soil and landscape degradation, loss of cultural values, etc.) and in the aquatic environment (eutrophication and the subsequent alteration of the lagoon, salinization and diminution of underground aquifers, etc.).

General objectives to which response is given

- To enhance the sustainability and compatibility with the conservation of the natural environment of the area's main economic sectors (**farming**, fishing, tourism and urban development).

Operational objectives

- To achieve the environmental adjustment and sustainable development of the sector in the area.
- To adjust the growth of the sector to the area's capability to sustain different farming activities.
- To enhance the sector's competitiveness and sustainability.

Action proposal

1. To carry out a **prospective survey** of the sector to know its current situation, its environmental effects, its trends or its foreseeable evolution and the area's carrying capacity to sustain this use (existing hydrological resources, characteristics and needs of the soils to sustain this activity, capability to take in nutrients and pollutants of a farming origin, etc.).
2. Implementation of **initiatives and tools** for the sustainable development of the farming activity and enhancement of the sector's competitiveness (integrated and ecological farming, etc.).
3. Formulation of **guiding criteria and actions** to be implemented for the sector's adequate environmental adjustment:
   a) **Code of good farming practices**, based on the area's uses, customs and needs.
   b) **Adjustment of agricultural** practices to the specific characteristics of soils and the area's carrying capacity with regard to the use of fertilizers, phytosanitary products and waste generated, reducing the sources of pollution.
   c) **Soil conservation and restoration**.
   d) **Water resource management** (rational utilizations of the resource, management of overflowing waters, restoration and monitoring, etc.).
4. Development of **guidelines** for the regulation of agricultural activities.

C. Sustainability of the fishing and aquiculture sector

Fishing and aquiculture make up another economic activity of importance to the area, having occurred over the last few decades a diminution of catches and, on the other hand, an increase in the production deriving from aquiculture.

An inadequate planning and management of these activities can have an negative effect on the conservation of the Mediterranean coastline. The use of certain fishing methods, such as trawler

fishing in sensitive and highly valuable areas, brings about the elimination of important habitats such as the mäerl bottoms. Likewise, an inadequate management of aquiculture gives rise to important intakes of nutrients and the corresponding eutrophication, muddiness of water and sedimentation. These last two processes also affect the conservation of the Mediterranean habitats, adjusted as they are to conditions in which a low concentration of nutrients prevails, bringing about rapid alterations of these systems' communities.

General objectives to which response is given

- To enhance the sustainability and compatibility with the conservation of the natural environment of the area's main economic sectors (farming, **fishing**, tourism and urban development).

Operational objectives

- To achieve the environmental adjustment and sustainable development of the sector in the area.
- To adjust the growth of the sector to the area's capability to sustain these activities.
- To enhance the sector's competitiveness and sustainability.

Action proposal

1. To carry out a **prospective survey** of the fishing and aquiculture sector to know its current situation, its environmental effects, its trends or its foreseeable evolution and the area's carrying capacity to sustain these uses, through the simulation of different fishing - stress scenarios.
2. **Assessment of the effect of fishing nets and aquiculture on the marine environment**, laying special emphasis on the repercussions on the *Posidonia oceanica* prairie and biocenoses of interest.
3. Formulation of **guiding criteria and actions** to be implemented for the sector's environmental adjustment and sustainability (possible new artificial reefs, use of different nets and tackle depending on the area, quality systems, new watch measures, etc.).
4. Development of **guidelines for the regulation** of these activities (possible new fishing regulations, enforcement of minimum - size rules, subsidised temporary cessation of activities, etc.).

Line of action 3: Conservation of natural and cultural resources

A. Preservation and fomentation of traditional uses and historical values (archaeological, palaeontological, ethnographical, architectural, etc.)

The social and economic changes having occurred in the area over the last few decades have brought about the deterioration or the loss of cultural values and traditional uses, as it is the case of the old Mar Menor bathing resorts, windmills or old salt works.

The action under consideration is aimed at the deepening of knowledge, preservation and fomentation of activities and uses compatible with the conservation of the natural environment, as represented by systems for the sustainable exploitation of natural resources, by creating or sustaining environments of a high ecological value.

As main examples of the aforesaid uses and activities, traditional agriculture and fishing methods and salt works must be mentioned. Besides, there is a highly relevant and unique historical and cultural heritage associated with these activities, such as the Mills and other buildings located at Las Encañizadas, which provided the fishermen who used the weir with support. Other historical - archaeological elements worthy of being highlighted are the watchtowers, the Roman shipwrecks and the Roman Villa at El Salar, or the caves of an important palaeontological value.

General objectives to which response is given

- To contribute to the conservation and management of natural and **cultural** resources.

Operational objectives

- To expand the knowledge of the relationships existing between traditional uses and exploitations and ecological processes and the conservation of biodiversity.
- To preserve and to foment sustainable traditional uses and exploitations and the historical heritage associated with them.

Action proposal

1. To carry out a survey to analyse the **ecological processes and the** existing **relationships** between traditional activities and natural resources, as well as the inventorying of cultural resources and values and the valuation thereof (condition, conservation and / or restoration needs, main resources it adds value to, the environment's quality and ecological fragility, proposed actions and measures).
2. Formulation of **guiding criteria and actions** to be implemented for the preservation of traditional activities and the historical heritage associated with them.
3. Development of **guidelines for the regulation** of these uses and the support and encouragement mechanisms to guarantee their conservation (subsidies, agreements, etc.); establishing co - operation frameworks among all the actors involved (Government Bodies, Owners, Local Population, etc.).

B. Guidelines for the management of protected areas

Nowadays, within the proposed CAMP there are protected areas having been declared such by regional, European and international authorities. Besides, occasionally, the declaration of several protection concepts is superimposed on the same area, having different legislative frameworks and priority conservation objectives.

It is, therefore, believed that the efficiency in the planning and the management of these areas would be improved by means of the preparation of some guidelines contributing to improve their consistency within the district, and their integration into other networks. On the other hand, such guidelines will become the framework for the implementation of management or handling plans for certain areas or natural resources. Thus, within this line of action the preparation is also envisaged of the ZEPIM Regulation and Management Plan, for it is one of the commitments made as a result of the declaration of the Specially Protected Area of Significance to the Mediterranean (ZEPIM) "Mar Menor and the Eastern Mediterranean Area of the Coast of the Region of Murcia". This ZEPIM Regulation and Management Plan will include the laying of special emphasis on the conservation and handling of wetlands and salt marshes, and on the Mar Menor and littoral strip communities.

General objectives to which response is given

- To contribute to the conservation and management of the **natural** and cultural **resources**.

Operational objectives

- To contribute to achieve the coordinated planning and management of the protected areas, with a view to improving their conservation and the contribution made by them to the district's sustainable development.
- To take the necessary measures for the conservation and monitoring of the protected areas and the values being the reason why they have earned such declaration.

Action proposal

1. To prepare **guidelines for the management** of the protected areas.
2. To prepare the **ZEPIM Regulation and Management Plan**, which will have to take the following aspects into consideration:
    - Analysis and diagnosis of the area; laying special emphasis on the characterization and functionality of the following key environments:
        - Wetlands and salt marshes:

- To identify the relationships existing between the temporal stream and the wetlands and salt marshes associated with them, and the uses that water is put to in the basin; as well as the value of these ecosystems as green filters in the cleansing of drainages, brine or home spillages and as systems cushioning the lagoon against intakes.
- To formulate guiding criteria and actions to be implemented for their preservation and / or restoration taking the analysis of their current situation and potential as a starting point.
- To develop guidelines for the regulation of uses and the support and encouragement mechanisms aimed at guaranteeing their conservation (subsidies, agreements, etc.), and to carry out restoration and social awareness projects.

▪ Mar Menor and littoral strip communities:

- To characterize and monitor the following variables by using tele - detection techniques and developing a SIG:
  - > Communities, by delimiting territorial units for their conservation and monitoring.
  - > Coastal dynamics.
  - > Physical and chemical parameters (temperature and salinity)
- To prepare, on the basis of the periodical monitoring of these variables, the system's working as well as predictive models concerning the repercussions and interactions of the variations of the system's different biotic and abiotic parameters.
- To formulate guiding criteria and to put measures into effect for the conservation of these communities.

- Zonation
- Objectives
- Necessary regulation and protection measures: regulatory scheme, actions, etc.
- Assessment and monitoring indicators.
- Action schedule, budget and funding.

3.3.2. Results of the action frameworks and their lines of action

The possible results and applications of the action frameworks and lines put forward are as follows:

- A comprehensive plan for the sustainable development of the Mar Menor and its area of influence.
- Within the framework of such Comprehensive Plan, specific sustainability plans for the farming, fishing, tourist and urban development sectors.
- Regulation and Management Plan for the "Mar Menor and the Eastern Mediterranean Area of the Coast of the Region of Murcia" ZEPIM.
- Plans for the conservation and management of natural and cultural resources.
- Consolidation of public participation in the activities aimed at the conservation and sustainable use of resources.
- Increase of public awareness with regard to the conservation and sustainable use of the area's resources.
- Enhancement of the training of the area's management teams, the different social and economic sectors and the population at large for the sustainability of the area's activities.
- Guidelines for the preparation of the Local Agendas 21 of the corresponding Town Councils.

3.4. INDICATOR INTEGRATION TABLE FOR THE CAMP AREA.

The European Environmental Agency, it its definition of environmental indicators (EEMA 1998) sets forth a simple model[34] to explain the relationships between man and his environment. Such a model, known as DPSIR (acronym standing for Driving forces - Pressure - State - Impact - Response), and inspired by the OCDE model known as PSR (acronym standing for Pressure - State - Response) does consider that certain sectorial trends (driving forces) are responsible for the pressures which, in turn, alter the state of the environment through impacts. Society intervenes to try and reverse the state deriving from the effect of these pressures by taking measures (responses) that may act on any of the three aforesaid spheres: on the problems (state) or on their direct (pressures) or indirect causes (sectorial trends or driving forces). These measures can be, in any of these spheres, of a preventive, corrective, mitigating or compensatory type[35].

[34] AEMA 1999. State and pressure of the marine coastal Mediterranean environment. Oficina de Publicaciones Oficiales de las Comunidades Europeas. Luxemburgo.

[35] Rodrigo Jiliberto H.* Manuel Alvarez-Arenas B. 2000. Modelos de conocimiento para la formulación de políticas en contextos de incertidumbre: el caso de la política de contaminación hídrica por la agricultura en Chile. Instituciones y Desarrollo Nº 6

Driving Forces	*Pressure*	*State*		*Impact*	*Response*	*"MAR MENOR AND ITS AREA OF INFLUENCE" CAMP*	
						Specific actions	***Generic and transversal actions***
Farming	**Increase in the agricultural area :**			- Changes in Biodiversity - Changes in Ecosystems - Alteration of Landscape and Habitats - Loss of historical and cultural values - Increase in Natural Risks - Exhaustion and Degradation of Resources	See Annexes III and IV	**Action Framework 3:** Comprehensive Plan ***Line of Action 2.B:*** Sustainability of the Farming Sector *Action Proposal:* 1. Prospective and carrying - capability survey 2. Initiatives and tools 3. Guiding criteria and environmental adjustment actions 4. Guidelines for the regulation of activities	**Action Framework 1:** Participation, information and communication **Action Framework 2:** Training **Action Framework 3:** Comprehensive Plan ***Line of Action 1:*** Territorial sustainability *Action Proposal* 1. Panel of experts 2. Territorial sustainability a) Territorial configuration of land uses b) Landscape adjustment d) Heritage and public domain ***Line of Action 3:*** Conservation of natural and cultural resources *Action Proposal:* A. Panel of experts 1. Processes and relationships 2. Guiding criteria and actions 3. Regulation guidelines B. Guidelines for the management of protected areas 1. Management guidelines 2. ZEPIM regulation and management plan
	Increase in the demand for water	Aquifer Exploitation External water intake	Overexploitation of aquifers Salinization of aquifers and soils Increase in overflowing waters				
	Occupation of the territory	Alteration of the hydrological basin					
		New ploughing up	Increase in the muddiness of the marine environment				
	Intensification:						
	Intakes of fertilizers and phytosanitary products	Organic matter increase in the sediment and bodies of water Intake of pesticides and fungicides	Pollution				
	Transformation from unirrigated into irrigated land		Substitution of species Erosion Desertification				

Driving Forces	*Pressure*	*State*		*Impact*	*Response*	*"MAR MENOR AND ITS AREA OF INFLUENCE" CAMP*	
						Specific actions	*Generic and transversal actions*
Tourism	Seasonal demand for resources	Waste increase	Pollution Eutrophication	- Changes in Biodiversity - Changes in Ecosystems - Alteration of Landscape and Habitats - Loss of historical and cultural values - Increase in Natural Risks - Exhaustion and Degradation of Resources	See Annexes III and IV	**Action Framework 3:** Comprehensive Plan ***Line of Action 2.A:*** Sustainability of the Tourist Sector *Action Proposal:* 1. Prospective and carrying - capacity survey 2. Possible scenarios 3. Initiatives and tools 4. Guiding criteria and environmental adjustment actions 5. Guidelines for the regulation of uses	**Action Framework 1:** Participation, information and communication **Action Framework 2:** Training **Action Framework 3:** Comprehensive Plan ***Line of Action 1:*** Territorial sustainability *Action Proposal:* 1. Panel of experts 2. Territorial sustainability a) Territorial configuration of land uses b) Landscape adjustment d) Heritage and public domain ***Line of Action 3:*** Conservation of natural and cultural resources *Action Proposal:* A. Panel of experts 1. Processes and relationships 2. Guiding criteria and actions 3. Regulation guidelines B. Guidelines for the management of protected areas 1. Management guidelines 2. ZEPIM regulation and management plan
	Consumption of water resources	Alteration of hydrological basin Physical and social and cultural pressures					
	Pressure on natural areas		Alteration of habitat				
	Increase in urban development and infrastructures	Change in land uses	Occupation of the territory				
		Alteration of hydrodynamics					
		Alteration of sedimentary dynamics					
	New uses and activities	Creation of beaches Creation of new infrastructures (marinas)	Change in sedimentary dynamics Increase in muddiness Destruction of habitat Eutrophication Pollution by hydrocarbons Destruction of habitat				

Driving Forces	*Pressure*	*State*	*Impact*	*Response*	*"MAR MENOR AND ITS AREA OF INFLUENCE" CAMP*	
					Specific actions	*Generic and transversal actions*
Fishing	Intensification of stress Substitution of nets Use of nets aggressive to the environment	Overexploitation of resources Exploitation of species other than target species Destruction of habitat	- Changes in Biodiversity - Changes in Ecosystems - Alteration of Landscape and Habitats - Loss of historical and cultural values - Increase in Natural Risks - Exhaustion and Degradation of Resources	See Annexes III and IV	**Action Framework 3:** Comprehensive Plan ***Line of Action 2.C:*** Sustainability of the Fishing and Aquiculture sector *Action Proposal:* 1. Prospective survey 2. Assessment of the effects of nets and aquiculture 3. Guiding criteria and environmental adjustment actions 4. Regulation guidelines	**Action Framework 1:** Participation, information and communication **Action Framework 2:** Training **Action Framework 3:** Comprehensive Plan ***Line of Action 1:*** Territorial sustainability *Action Proposal:* 1. Panel of experts 2. Territorial sustainability a) Territorial configuration of land uses b) Landscape adjustment d) Heritage and public domain ***Line of Action 3:*** Conservation of natural and cultural resources *Action Proposal:* A. Panel of experts 1. Processes and relationships 2. Guiding criteria and actions 3. Regulation guidelines B. Guidelines for the management of protected areas 1. Management guidelines 2. ZEPIM regulation and management plan

Driving Forces	*Pressure*	*State*		*Impact*	*Response*	*"MAR MENOR AND ITS AREA OF INFLUENCE" CAMP*	
						Specific actions	*Generic and transversal actions*
Aquiculture	Intake of nutrients	Eutrophication Increase in muddiness	Invasion and exploitation by opportunistic species Diminution of availability (displacement of species)	- Changes in Biodiversity - Changes in Ecosystems - Alteration of Landscape and Habitats - Loss of historical and cultural values - Increase in Natural Risks - Exhaustion and Degradation of Resources	See Annexes III and IV	**Action Framework 3:** Comprehensive Plan ***Line of Action 2.C:*** Sustainability of the Fishing and Aquiculture sector *Action Proposal:* 1. Prospective survey 2. Assessment of the effects of nets and aquiculture 3. Guiding criteria and environmental adjustment actions 4. Regulation guidelines	**Action Framework 1:** Participation, information and communication **Action Framework 2:** Training **Action Framework 3:** Comprehensive Plan ***Line of Action 1:*** Territorial sustainability *Action Proposal:* 1. Panel of experts 2. Territorial sustainability a) Territorial configuration of land uses b) Landscape adjustment d) Heritage and public domain ***Line of Action 3:*** Conservation of natural and cultural resources *Action Proposal:* A. Panel of experts 1. Processes and relationships 2. Guiding criteria and actions 3. Regulation guidelines B. Guidelines for the management of protected areas 1. Management guidelines 2. ZEPIM regulation and management plan

<table>
<tr><th rowspan="2">Driving Forces</th><th rowspan="2">Pressure</th><th colspan="2" rowspan="2">State</th><th rowspan="2">Impact</th><th rowspan="2">Response</th><th colspan="2">“MAR MENOR AND ITS AREA OF INFLUENCE” CAMP</th></tr>
<tr><th>Specific actions</th><th>Generic and transversal actions</th></tr>
<tr><td rowspan="3">Industry</td><td rowspan="2">Accumulation of mining waste</td><td>Increase in the intake of fine sediments</td><td>Sedimentary dynamic alteration
Increase in muddiness</td><td rowspan="3">- Changes in Biodiversity
- Changes in Ecosystems
- Alteration of Landscape and Habitats
- Loss of historical and cultural values
- Increase in Natural Risks
- Exhaustion and Degradation of Resources</td><td rowspan="3">See Annexes III and IV</td><td rowspan="3"></td><td rowspan="3">Action Framework 1:
Participation, information and communication
Action Framework 2:
Training
Action Framework 3:
Comprehensive Plan
Line of Action 1:
Territorial sustainability
Action Proposal
1. Panel of experts
2. Territorial sustainability
a) Territorial configuration of land uses
b) Landscape adjustment
d) Heritage and public domain
Line of Action 3:
Conservation of natural and cultural resources
Action Proposal:
A. Panel of experts
1. Processes and relationships
2. Guiding criteria and actions
3. Regulation guidelines
B. Guidelines for the management of protected areas
1. Management guidelines
2. ZEPIM regulation and management plan</td></tr>
<tr><td colspan="2">Intakes of pollutants (heavy metals)</td></tr>
<tr><td>Carrying out of industrial activities</td><td colspan="2">Intakes of pollutants</td></tr>
</table>

Driving Forces	*Pressure*	*State*	*Impact*	*Response*	*"MAR MENOR AND ITS AREA OF INFLUENCE" CAMP*	
					Specific actions	*Generic and transversal actions*
Urban development	Change in use Urban Expansion Development of large infrastructures	Occupation and destruction of habitat Fragmentation	- Changes in Biodiversity - Changes in Ecosystems - Alteration of Landscape and Habitats - Loss of historical and cultural values - Increase in Natural Risks - Exhaustion and Degradation of Resources	See Annexes III and IV	**Action Framework 3:** Comprehensive Plan ***Line of Action 1:*** Territorial sustainability *Action Proposal:* 2. Territorial sustainability c) Urban development planning	**Action Framework 1:** Participation, information and communication **Action Framework 2:** Training **Action Framework 3:** Comprehensive Plan ***Line of Action 1:*** Territorial sustainability *Action Proposal* *Action Proposal* 1. Panel of experts 2. Territorial sustainability a) Territorial configuration of land uses b) Landscape adjustment d) Heritage and public domain ***Line of Action 3:*** Conservation of natural and cultural resources *Action Proposal:* A. Panel of experts 1. Processes and relationships 2. Guiding criteria and actions 3. Regulation guidelines B. Guidelines for the management of protected areas 1. Management guidelines 2. ZEPIM regulation and management plan

4. JUSTIFICATION OF THE "MAR MENOR AND ITS AREA OF INFLUENCE" CAMP

4.1. COMPATIBILITY OF THE MAR MENOR CAMP PROPOSAL WITH THE CAMP OBJECTIVES AND JUSTIFICATION

The main elements justifying the need for the Integrated Coastal Area Management (ICAM) and, in particular, for the CAMP, are focused on the strong and growing pressure the littoral areas are being subjected to as a result of human activities, as well as on the need to go beyond an excessively sectorial view of the different existing problems, since, in view of the clear interrelationship among them, valid alternatives for a sector may be highly negative for another one, and, accordingly, an integrated view and harmonization of the different sectorial policies seems to be essential.

The confluence, in the case of the Mar Menor and its surrounding area, of a large part of problems typical to the Mediterranean coastline (urban development, tourism, fishing, intensive agriculture, impact on the hydrological resources, pollution, degradation of the natural environment...), in conjunction with the will of local authorities to face them in an integrated manner, as it has been proved in the preceding pages, do turn this district into a model case where the implementation of a CAMP acquires the utmost interest, if we are guided by the PAM's very criteria.

On the one hand, in view of the clear support shown by national and regional authorities in Spain, it is possible to guarantee that the current CAMP, once the planning stage has been completed, will move on to the actual implementation stage. That shall make it possible to overcome one of the main problems a large part of the previous CAMPs were faced with and will enable the opening of a demonstrative process of great interest to other areas in Spain and in the Mediterranean region at large.

From this point of view it can, therefore, be said that:

1. The objectives being put forward for the "Mar Menor CAMP", are fully compatible with the objectives set for the CAMPs, as can be concluded from the following enumeration:

To contribute to achieve a **sustainable model of development** for the area by means of planning and management, according to the ruling principles of the CAMP projects.

- To assess the **current situation, the trends and the possible** future **scenarios** of the spatial structure and the interactions between development and the environment by proposing instruments (criteria, guidelines, actions, etc.) contributing to solve the main problems identified.

- To enhance the **sustainability and compatibility** with the conservation of the natural environment of the area's main economic sectors (agriculture, fishing, tourism and urban development).

- To make a contribution to the **conservation and management** of the natural and cultural resources.

* To enhance the **coordination** mechanisms between the different government bodies and the area's social and economic actors for the compatibility and integrability of the policies implemented and the actions carried out.

- To increase **public awareness and participation** in the policies and activities aimed at the conservation and the sustainable use of resources.

- To improve the **training** of the area's management teams, the different social economic sectors and the local population to achieve the project's objectives and enable the launch of other initiatives related to conservation and sustainability.

2. The relevance of the chosen area is quite clear, the following aspects deserving to be underlined:

- Congestion and high level of urban development deriving from tourist - sector pressure.
- Agricultural intensification
- Areas facing pollution - related problems
- Natural areas of a high ecological value and highly fragile, the existence having to be emphasised of the Specially Protected Area of Significance to the Mediterranean (**ZEPIM**) *"Mar Menor and Mediterranean oriental coastal area of the Region of Murcia".*

3. There is an interest going beyond the local and national sphere with regard to the results expected from the Project.

With regard to this aspect it must be pointed out that this GICZ project is a pioneering one in Spain and in the UE, and, therefore, it can become a reference in the implementation of the principles of the "Recommendation on the implementation of private management of Europe's coastal areas".

On the other hand, the CAMP may contribute to infuse the "2000 - 2006 Strategic Development Plan for the Region de Murcia" and the rest of programmes and projects carried out in the area with a sustainable character, by means of the corresponding integration and coordination mechanisms already in operation, and will bring about the establishment of an Advisory Council for the Mar Menor and its area of influence.

4. The high degree of institutional involvement in the Project must be highlighted.

As it has already been analysed in subsection 2.7. "*Identification of Actors. Institutional and Social Participation"*, there is a political will to bring the project to completion, made clear locally, regionally and nationally. On a national level such will has been expressed with the presentation of the "Proposal document for the Mar Menor and its area of influence CAMP", the start of whose feasibility study procedure was supported by the contracting parties to the Barcelona Agreement in October 2002.

Possible contribution and involvement by these authorities and government bodies, as well as by the area's social and economic actors, are being analysed in the participation process, where a willingness to cooperate has already been made clear in these meetings which will be consolidated through the "Mar Menor and its area of influence Advisory Council".

4.2. POTENTIAL CONTRIBUTION BY THE PAM

Besides the main contribution of the PAP/RAC in the follow-up of the CAMP implementation, MAP could contribute with the support of other RACs in the following aspects:

BP-RAC

Establishment of a system of sustainability indicators for the area.

Contribution to the establishment of the methodological framework for monitoring.

SPA-RAC

Follow-up of the SPAMI Mar Menor

Support for the follow-up of action plans for species and selected communities in the area.

CP-RAC

Support to establish plans of clean production in the framework of the Integral Plan for Sustainable Development.

Support to capacity building courses for clean production.

ERS-RAC

Support to the establishment of a GIS and of follow-up systems for the area.

MEDPOL

Support to the establishment of a monitoring system of coastal and marine pollutants and the establishment of an action plan to minimize their presence and impact.

The PAM, in addition to its main contribution consisting in the monitoring and guiding activities that it will be carrying out through the PAP/RAC, could also contribute by means of the support provided by other RACs in the following aspects:

4.3. ASSESSMENT OF THE INSTITUTIONAL CAPABILITY AND THAT OF THE LOCAL AND NATIONAL EXPERTS FOR THE IMPLEMENTATION OF THE PROJECT

Within the institutional sphere, there is a legal and administrative framework, both on a national and on a regional level (as can be seen in Chapter 1 of this Report) that makes it possible to undertake in a more than satisfactory manner the preparation and launch of the proposed CAMP.

In this regard, the existing capability, both in the Ministry of the Environment, in particular through the agency of the Directorate General of Coasts, and in the Regional Government's Department of Agriculture, Water Resources and the Environment, will guarantee the essential part of the implementation process, with the help of the advice provided by the PAM and some individual experts.

With regard to the capability of the local and national experts for the implementation of the project, it can be said that there is no lack of personnel with enough training and experience to bring the Project to a successful completion, it only being necessary to have the already mentioned external support from the different RACs and the project's coordinator appointed by the PAP - RAC

4.4. NEEDS IN MATTERS PERTAINING TO AWARENESS, EDUCATION AND CAPACITY BUILDING FOR THE CAMP

In spite of efforts made by local authorities and the associative movement, the awareness of environmental issues and sustainable development remains quite insufficient in the area.

On the other hand, the training of personnel needs to be given a boost, in the public as well as in the private field, so that sustainable development actions be undertaken.

This is the reason why two of the main guidelines of the proposal are precisely focused on these issues:

Action Framework 1 - Participation, information and communication.

Action Framework 2 – Capacity building.

4.5. BUDGET

Participation, information and communication	**23,200 €**
• Materials for the technical office	6,960
• Design and maintenance of the web page	6,960
• Divulgatory materials	9,280
Capacity building	**201,840 €**
• Prospective review of capacity building needs for the diferent sectors	83,520
• Establishment of the capacity building modules	62,640
• Capacity building and awareness symposia for the implementation of the CAMP	55,680
Integral Plan for Sustainable Development	**431,520 €**
• Collection of information	10,440
• Inventorying and collection of data	146,160
• Preparation of database	24,360
• Preparation of cartography – SIG	55,680
• Analysis and diagnostic	69,600
• Financial study	41,760
• Elaboration of sectorial action guidelines and programmes	41,760
• Writing the Action Plan	12,528
• Edition and Publication of the Action Plan	8,352
• Support to public information and participation	20,880
Personnel and Travel	**372,960 €**
• Coordination of Action Frameworks (3)	156,600
• Information / Communication Office (2)	111,360
• External Coordinating Consultant	60,000
• External Consultants	30,000
• Travel and lodgement	15,000
TOTAL	**1,029,520 €**

Proposal for the financing of the necessary funds

The estimated 1,029,520 € could be obtained in the FEDER framework and, more specifically, inside the axis 3 (environment, natural environment and hydrological resources) of the "Programming Supplement to the 2000 - 2006 Integrated Operative Program".

Inside the aforementioned axis, Measure 5 (Environmental Actions in the Coasts) makes it possible, due to its objectives, to envisage the proposed funding.

By way of a supplement, the PAM could contribute with payment of travels and professional fees of the experts selected by the RAC and the nomination of the co-coordinator.

Once the Contracting Parties to the Barcelona Agreement had approved the start of the Mar Menor CAMP, the signing of an Agreement between the Department of Agriculture, Water Resources and the Environment of the Murcia Regional Government, the MIMAM and the PAP/RAC Directorate General of Coasts would be considered with a view to formalizing the financing proposal, the distribution of funds and the start of the process.

4.6. ORGANIZATION OF WORK

The preparation of the Mar Menor CAMP will be carried out under the following organization structure:

Direction. The Direction of the Project will be appointed by mutual agreement between the State's General Administration (MIMAM) and the Government of the Region of Murcia. The director so appointed will be responsible for the project to the PAM.

Advisory Council or Participatory Entity. The Mar Menor and its area of influence Advisory Council, dependent on the Department of Agriculture, Water Resources and the Environment, will play an advisory role and will act as central participation body coordinating the different sectors involved. It will consist of three commissions (Administrative, Scientific and Technical and Social Participation) and will have a permanent coordination body whose membership will be made up of representatives of each Commission. The Advisory Council will be chaired by the Project's Head.

Coordination. Two co-coordinators of the project will be appointed for the permanent monitoring of activities. One of the coordinators will be designated by the Department of Agriculture, Water Resources and the Environment of the Region of Murcia, and will be in charge of coordinating the local work team. The other, will be appointed by mutual agreement by the PAP/RAC and the Department of Agriculture, Water Resources and the Environment of the Region of Murcia, and will be in charge of the coordination between the authorities and the local work team, on the one hand, and the PAM on the other hand; as well as of coordinating the external contributions and the supervision and co - preparation of the monitoring reports. Both coordinators will also be members of the Advisory Council.

Working teams. An interdisciplinary team will be set up for each one of the three main actions streams (action frameworks). The external experts will be appointed by the different RACs, within the framework of the line of action previously expounded.

4.7. ACTIVITY SCHEDULE

	QUARTERS									
ACTIVITY	1	2	3	4	5	6	7	8	9	10
Technical support to participation	X	X	X	X	X	X	X	X	X	X
Website		X	X	X	X	X	X	X	X	X
Diverse materials			X	X					X	X
Study of capacity building needs		X	X	X	X					
Devising of capacity building modules				X	X	X	X			
Seminars				X					X	
Gathering of Plan information	X	X	X	X						
Database			X	X						
GIS			X	X	X	X	X	X		
Analysis and diagnostic			X	X	X					
Financial study				X	X	X	X			
Guidelines						X	X	X		
Writing of the Plan								X	X	X

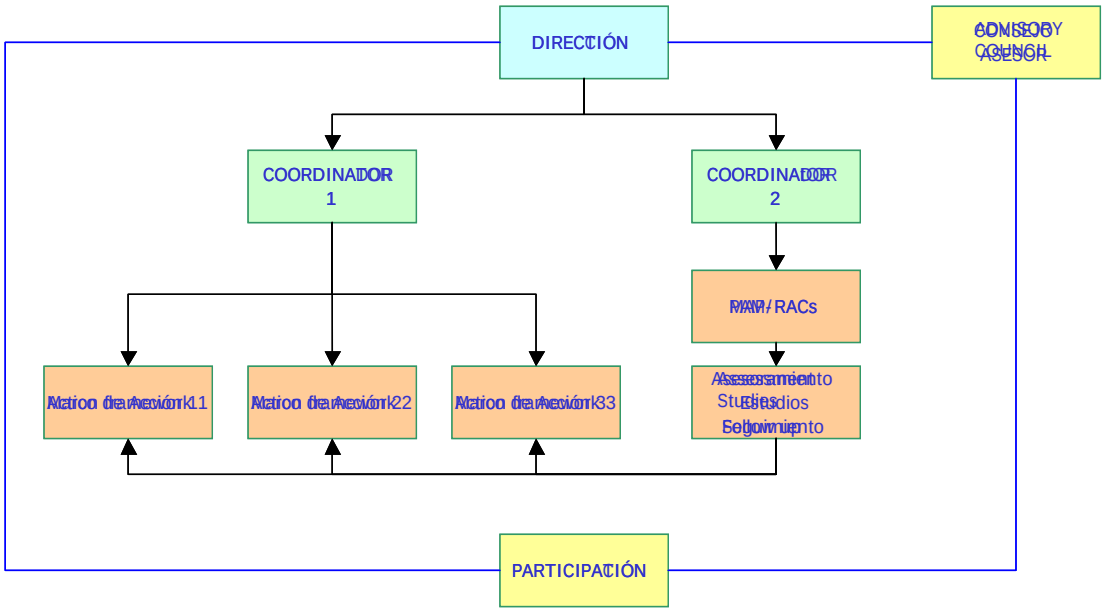
4.8. PROJECT IMPLEMENTATION AND INSTITUTIONAL AGREEMENT UNIT

In order to succeed in carrying out the project in an appropriate manner, a Specific Technical Unit will be set up for its management. The said Technical Unit will be based in a place to be agreed upon by the projects management bodies and will be coordinated by the two project's joint coordinators.

With a view to avoiding cases of dysfunction or overlapping, an agreement document will be signed for the management of the project by all national, regional and local participating bodies.

Also, following MAP practices, an Agreement will be signed by MAP, the Murcia Regional Government and the MIMAM, in order of formulating the Terms of Reference of the Project.

Organizational framework of the project



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- http://www.libroblancoagricultura.com
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6. CARTOGRAPHY

6.1. Cartographical Inventory for the CAMP

The most relevant national, regional and local public bodies to the preparation and supply of geographical information of interest to the Mar Menor CAMP would be the following ones:

- **Ministry of Agriculture, Fishing and Food**
  - Master Map for the Orthoimage of the Spanish Olive - Growing SIG for the Region of Murcia, in digital format (Scale: 1/10.000; date: 1998);
  - Master Map for the Orthoimage of the Spanish SIGPAC for the Region of Murcia, in digital format (at the preparation stage).
- **Ministry of Defence**
  - Orthoimage of the Region de Murcia prepared by the SIGA from aerial photographs taken by the USAF (date: 1956).
  - Army Geographical Service (Military Map of Spain):
    - Regional limits. Scale: 1/50.000;
    - Municipal limits. Scale: 1/50.000;
    - Main and complete road network. Scale: 1/50.000;
    - Regional hydrographical network. Scale: 1/50.000;
    - Contour lines every 100 m/20 m. Scale: 1/50.000;
- **Ministry of Transport and Communications: National Geographical Institute**
  - National Topographical Map Series (MTN25, MTN200, ...)
  - National Digital Cartographical Bases (BCN25, BCN200, ...)
  - Digital Terrain Models (MDT25, MDT200, ...)
  - Series of Spatial Orthoimages (SPOTP50, TM[36]250, TM500, ...)
  - Orthophotographs (ORTO25, ORTO10, ORTO5, ...)
  - Geodesic and Geophysical Bases, etc.
  - Altimetry, planimetry and crop files in digital format (Scale: 1/25.000);
  - National Topographical Map in digital format (Scale: 1/5.000);
  - Landsat 7 images (from the year 2000) and BCN 200 for the update of the Ground Map.
- **Ministry of the Treasury: Directorate General of the Cadastre**
  - Paper and digitalized orthophotographs (in tif format with geo - reference card) on a scale of 1/5.000 and 1/2.000.
  - Paper and digitalized cartography (in different formats) of urban and rustic property.
  - Alphanumerical data on rustic or urban real estate: ownership, land, construction, rateable value, uses, etc.
  - Master Map of the land plot zones of the Rustic Cadastre (Scale: 1/5.000). The completion and update of the rustic land plot register is planned with the Ministry of Agriculture, Fishing and Food SIGPAC project.

[36] Sensor Thematic Mapper of the Landsat satellite.

- **Ministry of the Environment: Segura River Hydrographical Confederation**
  - Segura River Basin Hydrological Plan (PHCS). Scale: 1/50.000;
  - The management of the utilization of hydrological resources, regulation, distribution and attention to the agricultural demands of areas susceptible of irrigation.
  - Delimitation of inundable areas and hydrological control of circulating flows.
  - Monitoring of irrigated areas and survey of desertification processes.
- **Department of Agriculture, Water Resources and the environment**

  Physical environment, natural resources and uses of the land:
  - Soil Map of the Region of Murcia in digital format (Scale: 1/100.000);
  - Maps of current and potential vegetation in digital format (Scale: 1/200.000. Updating date: 1998).
  - Habitat Map of Annex II to Directive 92/43/CEE, concerning the conservation of natural habitats and the wild fauna and flora, in digital format (Scale: 1/50.000);
  - Map of thermo - pluviometric stations with monthly average values in digital format.
  - Coastal Map of the Region of Murcia in digital format (Scale: 1/25.000. Preparation date: 1998).
  - Solar radiation map in digital format (Scale: 1/50.000). Average values of daily overall radiation expressed in Kw/ Sq. m., obtained from the treatment of images taken by the Meteosat satellite.
  - Stockbreeding Map of the Region of Murcia in digital format (Updating date: 2.000).
  - Map of the Third National Forestal Inventory in digital format (Updating date: 2.000; on the initiative of the Ministry of the Environment).
  - Sheets of Spain's Forestal Map in digital format (on the initiative of the Ministry of the Environment).

  Territorial protection concepts:
  - Map of Public Utility Woodlands in digital format (Scale: 1/50.000);
  - Network of natural protected areas in digital format (Scale: 1/50.000). For the implementation of Act 4/1992 on the Regulation and Protection of the de Territory of the Region of Murcia.
  - Sites of Community Importance (SCI) in digital format. For the implementation of Directive 92/43/CEE, concerning the conservation of natural habitats and the wild fauna and flora.
  - Special Protected Areas (SPA) in digital format (Scale: 1/50.000). For the implementation of Directive 79/409/CEE concerning the Conservation of Wild Birds.
  - Livestock ways in digital format.
  - Important Bird Areas (IBA) of the Region of Murcia in digital format.
  - Specially Protected Areas of Mediterranean Importance (SPAMI) in digital format.

- **Department of Tourism and Regulation of the Territory**

  Topographical Maps:
  - Regional Topographical Map (MTR) SERIE E400 (Scale: 1/400.000).
  - Regional Topographical Map SERIE E200 in paper format.
  - Regional Topographical Map SERIE E20.

- Regional Topographical Map SERIE E5 in digital format (basic cartography).
- Urban Area Topographical Maps SERIE E1 in digital format (basic).
- Urban Area Topographical Maps SERIE E0.5 in digital format (Scale: 1/500; basic).

Ortophotography Maps:

- Regional Ortophotography Map SERIE E200.
- Regional Ortophotography Map SERIE E100.
- Regional Ortophotography Map SERIE E20.
- Regional Ortophotography Map SERIE E5 in digital format.
- Urban Area Ortophotography Maps SERIE E0.5 in digital format.
- Digital Ground Models in digital format with a 2x2 metre cell - size and 16 - bit depth. Available in CD - ROM format.

Thematic cartography (with the co - operation of the Spanish Geology and Mining Institute):

- Atlas of the Natural Environment of the Region of Murcia (1999).
- Atlas - Inventory of Natural Risks in the Self - Governing Region of Murcia (1995).
- Map - Guide of the Physical Environment and Natural Resources in the Region of Murcia (1994).
- Geological Map of the Region of Murcia (1993).
- Neotectonic, seismotectonic and fault activity Map of the Region of Murcia.
- Historical Chart and Photograph Library where, in addition to its production, the cartographical documentation of the Region of Murcia has been collected. The Photograph Library has a collection of almost 50,000 photograms. Its digitalization is currently underway.
- Territorial Reference System as a territorial regulation support instrument. It intends to become a database with a GIS geographical reference and management system.

6.2. Cartography for the feasibility study

Map 1: Location

Map 2: Population centres

Map 3: Soils

Map 4: Land Uses

Map 5: Infrastructures

Map 6: Natural habitats of community interest

Map 7: Bentic bionomy

Map 8: Protected areas

Map 9: Environmental units

Map 10: Stockbreeding