

ANNEX IV
RECOMMENDATIONS AND PROGRAMME BUDGET
FOR 1998 - 1999

RECOMMENDATIONS FOR THE BIENNIUM 1998 -1999:

A RECOMMENDATIONS ADDRESSED TO THE CONTRACTING PARTIES

The Contracting Parties approve the following recommendations:

I. COORDINATION

Strategic Priorities

1. To give high priority to the implementation of the MAP legal instruments, and request the Secretariat to assist them in the implementation of those instruments, in particular the Land-based Sources and Specially Protected Areas Protocols as priority tasks.
2. To make every effort for the full implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, through the adoption of a Strategic Action Programme to Address Pollution from Land-Based Activities and the development of National Programmes of Action as envisaged in the amended LBS Protocol.
3. Which are eligible, to apply for projects with the Global Environment Facility (GEF), in particular projects in the fields of biodiversity and international waters.

Legal Component

1. To notify to the Depository, in writing, their acceptance of the amendments to the Convention for the Protection of the Mediterranean Sea against Pollution, the Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft (Dumping Protocol), and the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources (LBS Protocol).
2. If they have not done so, to ratify, accept or approve of, or accede to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean and its three Annexes (SPA Protocol), the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol), and the Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movement of Hazardous Wastes and their Disposal (Hazardous Wastes Protocol).
3. To review their countries' position with respect to other pertinent international conventions, protocols and agreements and to ensure the early signature of those instruments which may have a positive influence on the Mediterranean Basin.
4. To adopt the recommendations of the Ad Hoc Group on MED Unit, MED POL and RACs Structure as contained in Appendix I to this Annex, and request the Secretariat to take the necessary arrangements for their implementation.

Information and Participation

MAP Collaboration with Non-Governmental Organizations (NGOs):

1. To establish a working group composed of representatives of the Contracting Parties with the objective of undertaking a methodological reflection in relation to NGOs participation in MAP.
2. To include the following Non-Governmental Organizations in the MAP/NGO List of Partners:
 - C Association Marocaine pour la Protection de l'Environnement (ASMAPE)
 - C Association Monégasque pour la Protection de la Nature (AMPN)
 - C Association de Réflexion d'Echange et d'Action pour l'Environnement et le Développement (AREA-ED)
 - C Association Tunisie Méditerranée pour le Développement Durable (ATUMED)
 - C Chambers Group for the Development of Greek Isles (EOAEN) - Epemeleteriakos Omilos Anaptyxis Hellenikon Nision
 - C EcoPeace
 - C Forum of the Mediterranean for the Environment and Sustainable Development (MED Forum)
 - C International Energy Foundation (IEF)
 - C Mouvement Ecologique Algérien (MEA) - Algerian Ecological Movement (AEM)
3. To delete the following NGO from the MAP/NGO List of Partners:
 - C ICED - International Centre for Environment and Development (Switzerland); and to invite the Secretariat to make a final attempt to establish contact with the University of the Mediterranean (Italy) - UNIMED, and to authorise the Bureau to take the necessary decisions at its next meeting.

II. POLLUTION PREVENTION AND CONTROL

a. Pollution Control

1. To move towards the formulation and implementation of action-oriented activities focusing on the control of pollution including environmental instruments such as eco-auditing.
2. To decide that data quality assurance activities are essential to ensure the necessary reliability of the pollution data deriving from the monitoring activities.
3. To give every support to the implementation of the biomonitoring programme which provides useful data for risk assessment and for an early warning system to enable a timely formulation of governmental strategies to prevent irreversible alteration to the Mediterranean coastal ecosystems.
4. During the biennium 1998-1999, to concentrate on the identification of policies and implementation strategies for the reduction of TPBs with a view at their elimination, the management and discharge of municipal waste waters, and the prevention and elimination of releases of nutrients.

5. To assign to the Secretariat the coordination and follow-up of the activities related to the future implementation of the Hazardous Wastes Protocol in accordance with the recommendations made by the *ad hoc* Working Group responsible to analyse the structures of MEDU, RACs and MED POL.
6. To continue and/or strengthen cooperation with the competent United Nations agencies, Regional Activity Centres, intergovernmental and international organizations, sub-regional agreements and programmes and, as appropriate, non-governmental organizations for the implementation of priority activities approved by the Contracting Parties. In particular, to favourably answer to the offer of the RAMOGE Agreement to cooperate in the implementation of MEDPOL.
7. To provide adequate funds including external funds for the proper implementation of MED POL - Phase III, bearing in mind the activities which need to be carried out in the framework of LBS, Dumping and Hazardous Wastes Protocols for the sustainable development of the Mediterranean Sea.
8. To adopt the Strategic Action Programme (SAP) to Address Pollution from Land-based Activities as contained in Appendix II to this Annex and to make every effort to implement it in the framework of the objectives and principles of the LBS Protocol.

b. Prevention of the Pollution of the Marine Environment by Ships

1. To adopt the regional strategy on prevention of the pollution of the marine environment by ships, proposed by the meeting of REMPEC Focal Points held in Malta 22-26 October 1996 which appears in Appendix III to this Annex.
2. To decide that, as a consequence:
 - a/ the Emergency Protocol is to be amended in order to introduce the provisions necessary to implement this strategy;
 - b/ the Annex to the Resolution 7 related to the objectives and functions of REMPEC is to be amended, and;
 - c/ the desire to adopt the corresponding amendments on the occasion of their 1999 meeting.

III. PROTECTION OF BIOLOGICAL DIVERSITY

1. To intensify their efforts towards the protection of the common Mediterranean heritage, in particular by the effective management of the marine and coastal protected areas already set up. Considering the still limited number of marine protected areas in the Mediterranean, the Parties are also urged to establish new SPAs covering the most critical marine habitats and ecosystems of the region.
2. To evaluate, and when necessary improve the information on, the status of the species listed in the annexes to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA Protocol) in the areas under their sovereignty and jurisdiction.

3. To adopt the general principles and definition of the geographical coverage for the preparation of inventories of the elements of biological diversity in the Mediterranean region, and the criteria for the preparation of national inventories of natural sites of conservation interest proposed by the Meeting of Experts on Criteria for the preparation of Inventories of the Elements of Biological Diversity in the Mediterranean Region, held in Athens, 8-10 September 1997, which appears in Appendix IV to this Annex.
4. To decide that the technical tools referred to in recommendation B.VI.7 and provided for in para. 3, second indent of the general principles and in para. 3 and 7 of the criteria for the preparation of national inventories of natural sites of conservation interest (see Appendix IV to this Annex) will be finalised at the level of the meeting of the National Focal Points of SPA and adopted at the level of the Meeting of the Contracting Parties.

IV. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SUSTAINABLE MANAGEMENT OF COASTAL ZONES AND NATURAL RESOURCES, FOLLOW-UP OF PROPOSALS AND MAIN LINES OF ACTION FOR THE MCSD

First, the Contracting Parties:

1. Take note with appreciation of the work done by MCSD and approve its recommendations concerning the management of water demand and the sustainable management of coastal zones as contained in Appendix V of this Annex.
2. Take appropriate action to implement these recommendations.

Next, each of the Contracting Parties:

3. Translates the strategic lines of action of the MCSD into proposals for concrete action, set within a time frame, geared to the specific features of national and local situations, with the cooperation of MAP as appropriate.
4. Takes the necessary measures with the appropriate resources to put in place activities at the national and local levels.
5. Involves the major partners of their civil society, (local authorities, socio-economic actors and NGOs) in the implementation and follow-up of priority projects and activities in order to ensure all the conditions for the necessary sustainability.

To that end, the Contracting Parties, inter alia:

6. Adopt the Rules of Procedure of the Mediterranean Commission on Sustainable Development as contained in Appendix VI to this Annex.
7. Renew the mandate given to the Bureau by the Extraordinary Meeting of the Contracting Parties, (Montpellier, 1-4 July 1996), with a view to completing the selection of the membership of the MCSD, following consultation with the Contracting Parties.
8. Reconfirm the present membership of the MCSD for another term until the next meeting of the Contracting Parties.

9. Dedicate greater efforts as well as human and financial resources to the definition and implementation of the policies and strategies of integrated planning and management of coastal zones and management of water demand, in conformity with MCSD related recommendations (see Appendix V to this Annex).

Furthermore, the Contracting Parties,

10. Ensure the application of regional guidelines for coastal planning and management and other relevant activities in smaller zones with the objective to resolve the most urgent environmental problems and to achieve sustainable development of coastal zones.
11. Strengthen their capacity building activities in the fields of coastal management and sustainable development, through an integrated environment and development approach based, inter alia, on indicators and prospective analysis as decision making tools.
12. Promote the integration of remote sensing in the planning and decision-making processes for the sustainable management of resources.
13. Develop their national and regional environmental and sustainable development information systems, through establishment of national observatories or similar functions, for observation, analysis, follow-up and evaluation of status, policies and actions.
14. Dedicate appropriate efforts to take into account in their national development strategies the interactions between population, economic activities and environment, together with their future trends, through a prospective approach.
15. Those Contracting Parties hosting CAMP projects and the relevant bilateral and multilateral programmes, support CAMP projects as practical demonstration areas for sustainable development and for the protection of the Mediterranean environment.

B. RECOMMENDATIONS ADDRESSED TO THE SECRETARIAT:

I. MED UNIT:

1. To invite the Secretariat (MEDU) to further strengthen its cooperation with relevant United Nations Agencies and other intergovernmental organisations, especially with EU, GEF, METAP and IUCN, for the benefit of the environment and sustainable development in the Mediterranean.
2. To invite the Secretariat (MEDU) to further strengthen its cooperation and coordination with relevant non-governmental organisations, providing them with the necessary support, in particular in the field of public information and participation.

3. To invite the Secretariat (MEDU) to strengthen its cooperation and coordination with the relevant Secretariats of environmental Conventions with a view to avoiding overlapping and duplication of work, and benefiting from their programmes.
4. To invite the Secretariat (MEDU) to further strengthen its cooperation with the Council of Europe and the United Nations Economic Commission for Europe (UN/ECE), especially in the framework of the Environment for Europe process.
5. To invite the Secretariat (MEDU) to strengthen relationships with the European Environment Agency (EEA), in particular on the issue of the state of the Mediterranean environment.
6. To invite the Secretariat (MEDU) to initiate cooperation and coordination with the Secretariat of the Arab League Council of Ministers in charge of the environment.
7. To invite the Secretariat (MEDU) to strengthen cooperation and coordination with the Black Sea Secretariat.
8. To invite the Secretariat (MEDU) to assist the Contracting Parties to incorporate, as relevant as possible, MAP legal instruments in their national regulations.
9. To invite the Secretariat (MEDU), acting as the Secretariat for the Mediterranean Commission on Sustainable Development, to further develop its work towards assisting the Commission to smoothly discharge its work.
10. To invite the Secretariat (MEDU) to elaborate and present to the Bureau of the Contracting Parties a concrete action programme in the field of information within the MAP system.
11. To invite the Secretariat (MEDU) to take the necessary action to make MAP and its legal instruments better known in the Mediterranean region as well as outside the region.
12. To request the Secretariat (MEDU) to finalise the draft system of coherent reporting, requested by the last meeting of the Contracting Parties (Montpellier, July 1996) and authorise its Bureau to review the revised draft on reporting system to be prepared by the Secretariat on the basis of the various comments made during the debate on this subject and take the necessary decisions.
13. In view of the work of the First meeting of Government-designated legal and technical experts on the preparation of appropriate rules and procedures for the determination of liability and compensation for damage resulting from pollution of the marine environment in the Mediterranean Sea Area, held in Brijuni from 23 to 25 September 1997, to request the Secretariat to continue to combine information on international experience in this field and to hold a second meeting of legal and technical experts to identify appropriate innovative approaches for the development of such rules and procedures which could be readily applied in the region.
14. To invite the Secretariat to suggest concrete proposals concerning the follow-up of existing and completed CAMP projects.

15. To incorporate the proposals of the MCSD in MAP's programme of activities and to draw up a list of priority projects and activities with, as far as possible, a time frame for actions at the regional, national and local levels in connection with the proposals of the MCSD and in coherence with the activities identified by the Contracting Parties.
16. To inform the other international actors and programmes concerned with the Mediterranean region (such as the European Union, including its EuroMediterranean Partnership, and METAP, the United Nations bodies, CEDARE, etc) of MCSD's proposals and the list of priority projects and activities in order to encourage them to take them into account in their own programmes and to provide, if possible, additional financial resources for the implementation of activities included in the MAP framework.
17. To provide through all MAP components the scientific and technical support needed by the Contracting Parties to implement the activities they have selected and to promote exchanges of experience.
18. To promote the results of MCSD activities among all regional and international partners and in civil society.
19. To identify appropriate follow-up and evaluation tools, including indicators, for the selected projects and activities and to inform all the actors concerned, including the MCSD.
20. To ensure that the MCSD meeting immediately preceding the meeting of Contracting Parties is held at least two months before the meeting of MAP Focal Points in order to take full account of MCSD's proposals and the list of priority projects and activities.

II. MEDPOL

Pollution Prevention and Control

1. To request the Secretariat (MED POL) to give priority to the implementation of capacity-building activities related to the design and implementation of pollution trend monitoring, biological effects monitoring and compliance monitoring programmes in line with the decisions of the MED POL Coordinators.
2. To request the Secretariat (MED POL) to complete and finalize the work on the identification of sources and pollution loads related to pollution hot spots and to work on the formulation and implementation of action plans, programmes and measures related to the control of pollution from land-based activities.
3. To request the Secretariat (MED POL) to work on the processing and analysis of the data resulting from the trend monitoring activities and to explore ways of strengthening significantly the analytical and statistical capabilities of MED POL in order to assist the participating national institutes accordingly.
4. To invite the Secretariat (MED POL) to finalise, with the help of Mediterranean experts, the preparation of Guidelines for the Management of Dredged Spoils as part of the implementation of the revised Dumping Protocol and to transmit them, once approved by the Government-designated experts, to the Contracting Parties for a written procedure of adoption to be examined by the Bureau.

III. REMPEC

1. To request the Secretariat (REMPEC), pending the adoption and entry into force of the amendments to the Emergency Protocol, to be charged with implementing the strategy on the prevention of pollution of the marine environment by ships, as regards cooperation among the Mediterranean States, supplementing in this way its action concerning preparedness for and response to accidental marine pollution.

IV. BP/RAC

1. To invite the Secretariat (BP/RAC) to continue developing, in cooperation with relevant national institutions and appropriate NGOs, prospective analysis and evaluation of development-environment interactions at the global Mediterranean level and at the coastal regions level, ensuing at the same time appropriate training of specialists and dissemination of information and results.
2. To invite the Secretariat (BP/RAC) to pursue and strengthen the activities of the Mediterranean Environment and Development Observatory, in close cooperation with MEDU, RACs and concerned regional and international organizations, and by promoting, with appropriate technical extra budgetary assistance as required, the development of corresponding national observatories and appropriate regional networking.
3. To invite the Secretariat (BP/RAC) to provide necessary support to MCSD activities, its working groups and workshops, especially those related to the management of water demand and sustainable management of coastal zones, as well as preparatory activities related to indicators, sustainable tourism and the management of urban and rural zones.
4. To invite the Secretariat (BP/RAC) to integrate the results of its activities into strategic and policy recommendations towards sustainable development decision making with a view to produce a global Mediterranean prospective output by year 2000 with a special focus on coastal regions, together with a report on the State of the Mediterranean Environment and Sustainable Development, in close cooperation with MAP components.
5. To invite the Secretariat (BP/RAC) to strengthen its cooperation with partner institutions (EC/EEA/EUROSTAT, METAP, national institutions, etc..) for joint analytical and prospective activities related to sustainable development in Mediterranean coastal regions in conformity with MAP priorities.
6. To invite the Secretariat (BP/RAC) to improve its capacity-building and communication activities with a series of appropriately focused workshops and wider dissemination of its results and products, as far as possible in French and English (fascicles, country profiles, position papers, data and indicators sheets, etc..).

V. PAP/RAC

1. To invite the Secretariat (PAP/RAC) to pay particular attention to increasing the efficiency of programme implementation, capacity building, and institutional strengthening, including collaboration with NGOs and local authorities, within the integrated management of Mediterranean coastal zones.
2. To invite the Secretariat (PAP/RAC) to offer full technical and professional support to the MCSD and its working groups, giving priority to the implementation of the recommendations of the working groups dealing with sustainable management of coastal zones, and with water resources (such as regional guidelines for ICAM and urban water demand strategies).
3. To invite the Secretariat (PAP/RAC) to continue implementation of the Coastal Areas Management Programme (CAMP), taking into account efforts to improve the quality of activities.
4. To invite the Secretariat (PAP/RAC) to continue its search for the most appropriate methods and techniques, as well as capacity building and institutional strengthening activities in the fields of integrated coastal area planning and management, water resources management, solid waste management, sustainable tourism, aquaculture, and soil erosion management.

VI. SPARAC

1. To invite the Secretariat (SPA/RAC) to take steps for the establishment of cooperative linkages with the Secretariat of the Convention on Biological Diversity, taking note of comparative study among the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, the Convention on Biological Diversity and the other legal instruments or cooperation processes covering wholly or partially the Mediterranean region.
2. To invite the Secretariat (SPA/RAC) to define, in consultation with the Interim Secretariat of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS), the practical modalities allowing it to provide the function of sub-regional Coordination Unit for the Mediterranean, as defined in Article V of the Agreement.
3. To take note of the proposal of the Mediterranean Protected Area Network (MEDPAN) for SPA/RAC to participate in the revised structure of the network and to invite the Secretariat (SPA/RAC) to pursue consultations with MEDPAN on this issue, keeping in mind MAP's rules and procedures.
4. To invite the Secretariat (SPA/RAC) to assist the Contracting Parties in the assessment of the status of the species listed in the annexes to the SPA Protocol, and to assess the status of those species at the regional level.
5. To invite the Secretariat (SPA/RAC) to pursue its assistance to the Contracting Parties in the preparation of National Strategies for the conservation and sustainable use of biological diversity, duly taking into account marine biodiversity in those strategies.

6. To invite the Secretariat (SPA/RAC) to prepare guidelines for dealing with the issues of introduction and reintroduction of marine species in the Mediterranean.
7. To invite the Secretariat (SPA/RAC), in conformity with para. 3 and 7 of the criteria for the preparation of national inventories of natural sites of conservation interest (see Appendix IV to this Annex), to work on the elaboration of:
 - a model classification of marine and coastal habitat types for the Mediterranean region;
 - reference lists of habitat types and species to be annexed to the criteria;
 - a standard data form for the compilation of information concerning the sites included in the national inventories.
8. To invite the Secretariat (SPA/RAC) to continue to process the development of criteria for the establishment of inventories of elements of biological diversity in the Mediterranean region, taking into account the Meeting of Experts held in Athens from 8 to 10 September 1997.
9. To invite the Secretariat (SPA/RAC) to assist the Libyan Arab Jamahiriya in reviewing the second phase of the survey of Libyan coasts for marine turtle nesting, between Syrthe and Mistrata and in providing technical support for launching the third phase of the survey, between Mistrata and Ras Jedir.

VII. ERS/RAC

1. To invite the Secretariat (ERS/RAC) to contribute to the implementation of the ongoing and planned Coastal Areas Management Programme (CAMP) by applying remote sensing and its integration with other sources of information, in cooperation with and assisting national experts and Institutions.
2. To invite the Secretariat (ERS/RAC) to strengthen capacity building for the setting-up of information systems supported by remote sensing, also by promoting a Mediterranean network for an effective use of these techniques.
3. To invite the Secretariat (ERS/RAC) to assist Mediterranean Countries in setting up activities for monitoring the state of, and changes in, priority environmental issues (i.e. desertification, coastal changes, urbanization), seeking external sources for funding.
4. To invite the Secretariat (ERS/RAC) to plan, promote and develop the use of remote sensing for the observation and surveillance of oil pollution in the Mediterranean sea, as well as for supporting MEDPOL activities, also in order to assess coastal vulnerability to marine pollution.
5. To invite the Secretariat (ERS/RAC), also in cooperation with other MAP components, to fully support the Mediterranean Commission on Sustainable Development in the preparation of programmes of priority activities to be implemented in the framework of the MAP.

VIII. CP/RAC

1. To invite the Secretariat (CP/RAC) to call for the Second Experts Meeting on Surface Treatment and Coating Sector in 1998.
2. To invite the Secretariat (CP/RAC) to call for the Second National Focal Points Meeting in 1999 and for a meeting on leather tanning and finishing sector to be held in 1999 in cooperation with the Spanish Government. An extraordinary National Focal Points Meeting should be called in 1998, if required.
3. To request the Secretariat (CP/RAC) to continue publishing and disseminating cleaner production success stories on the new collection called MedClean, to show real examples of pollution prevention and cleaner production achieved by different companies from MAP countries, mainly on the priority sectors (metal plating and leather).
4. To request the Secretariat (CP/RAC) to launch a periodical information system with news about programmes, achievements, etc. from the different NFP.
5. To invite the Secretariat (CP/RAC) to prepare a questionnaire and to start the collection and systematization of data on:
 - legal and statutory framework of cleaner production in the different countries about possibilities and difficulties of cleaner production implementation in the Region to be presented to the Contracting Parties;
 - inventory of agents dealing with cleaner production in each country;
 - tools and methods used in the MAP countries to approach cleaner production to the industrial sectors.
6. To request the Secretariat (CP/RAC) to distribute collected and systemized information through National Focal Points and the Coordinating Unit.
7. To invite the Secretariat (CP/RAC) to cooperate in Best Available Technology (BAT) and Best Environmental Practice (BEP) definitions and, when possible, to initiate the elaboration of guidelines of BAT and BEP for the priority sectors.
8. To invite the Secretariat (CP/RAC) to seek funding and act as intermediary body in coordinating and monitoring of a training programme to facilitate regional multilateral contact and access to know-how, thus accelerating the introduction of cleaner production techniques and practices.
9. To invite the Secretariat (CP/RAC) to give its support to small and medium-sized enterprises by encouraging the dissemination of practical tools intended to make more widely known appropriate procedures for encouraging the enterprises to improve their production systems, and also to invite the Secretariat (CP/RAC) to cooperate with the relevant MAP structures in implementing the LBS Protocol, in the effective operation of MEDPOL and in providing all necessary support for the MCSD thematic working group on industry and sustainable development.

PROGRAMME BUDGET FOR THE BIENNIUM 1998-1999:

In comparison with the budget for 1997, the presentation of the programme budget for 1998-1999 has been modified to better reflect the reality in as far as the payment of contributions is concerned. The programme budget does not add proposals but rather aims to promote the existing priorities agreed upon by the Contracting Parties. These priorities result from the following:

- (a) the new or revised legal instruments approved by the Parties. Emphasis would be given to the modified LBS protocol and the new protocol concerning specially protected areas and biological diversity.
- (b) the establishment and functioning of the Mediterranean Commission on Sustainable Development. The first MCSD meeting in Rabat (December 1996) already identified priority themes.
- (c) the priority fields of activities (1996-2005) approved by the Parties in 1995 can be considered as a guideline for the identification of MAP priorities.

The budget proposals were grouped according to the source of funding in three columns:

- (a) activities to be funded by MTF. All personnel and operating costs, if not directly covered by host countries, are included under this column which relies on contributions from the Contracting Parties.
- (b) activities to be funded by the EU voluntary contribution.
- (c) activities funded or expected to be funded by External (EXT) sources such as GEF, METAP, etc. In most of the cases financial donors have not yet been identified and therefore the amounts in this column are indicative. The donor will be selected taking into consideration priorities and criteria established by them. A separate document (UNEP(OCA)/MED IG11/Inf.3) is available providing information on activities for which external funding is sought.

All budget proposals fall within one of the following chapters of the budget. General items, such as information, are included under various chapters.

- (a) Coordination

All funds under this chapter will be handled by MEDU. It basically includes the organisation of coordination meetings such as those of Contracting Parties, MAP focal points, Bureau of Contracting Parties, MCSD, Bureau of MCSD (if approved) and RAC directors. General information on MAP, activities on legal framework, support to NGOs and training at MEDU is also included here. Meetings of focal points of the RACs or Programmes are not included here.

- (b) Pollution prevention and control

This chapter includes mostly the activities relevant to the implementation of the LBS, Dumping, Emergency, Offshore and Hazardous protocols. Activities of MED POL, REMPEC, CP/RAC are included here. Relevant activities of ERS/RAC are also included here.

- (c) Protection of biological diversity

This chapter mainly includes the activities for the implementation of the protocol concerning SPA and biodiversity for which SPA/RAC is responsible.

- (d) Integrated environment and development: Sustainable management of coastal zones

This is one of the priorities of the MCSD. Relevant activities of RACs as well as CAMPs are included here.

- (e) Integrated environment and development: Sustainable management of natural resources

Management of water demand is one of the priorities set by MCSD while soil protection activities are a continuation of the past.

- (f) Integrating environment and development: Specific activities

Conceptual activities as well as activities supporting the MCSD working groups are included here. MCSD identified a number of priority themes such as tourism, industry and sustainable development.

At their last meeting, the Bureau of the Contracting Parties (9 May 1997, Palma de Majorca), and the MAP National Focal Points (Athens, 7-9 July 1997), reviewed and accepted the new presentation for the programme budget (thematic approach).

With regard to the 1998-1999 contributions, it was felt by some Contracting Parties that they have been experiencing national budgetary constraints which do not allow for an increase in the contributions for the next biennium. Others felt that there was a need for a modest increase in the contributions to maintain a moderate rate of growth of the MAP budget, enabling it to shoulder the new responsibilities emanating from the new or revised legal instruments. Finally, the need to accept an increase of 2% for each year was agreed. However, Italy maintained its reservation due to objective difficulties stating that it could not increase its ordinary contribution for 1997 and that, as an exception, the increase in the contribution would be in kind for activities already appearing in the budget (see also footnote on page 18).

As regards the 1998-1999 budget, the following points are worth mentioning:

- (a) The budgeted activities are equal to the level of actual contributions. Unpaid pledges have been taken into account for 1998 but not those of former Yugoslavia as it is not realistic to expect payment of these pledges soon. No unpaid pledges could be considered for the financing of the 1999 activities.
- (b) The revolving fund had to be readjusted to match the level of budgeted activities, which implies that the contributions for 1998/1999 will have to be paid at the beginning of the year.
- (c) In 1998/1999 there will be no more extraordinary contributions; the 1998 contributions are increased by 2% in comparison with the 1997 ordinary contributions and the 1999 contributions represent a 2% increase over the 1998 contributions.
- (d) UNEP has accepted not to charge the 13% programme support costs to the European Union voluntary contribution and as a consequence this amount is now transferred to activities.
- (e) The Secretariat will follow the situation insofar as the availability of funds is concerned and will inform the Bureau of the Contracting Parties in case any budgetary adjustments have to be made during the biennium.

SUMMARY OF BUDGETARY ALLOCATIONS

	Approved Budget (in US \$)	
	1998	1999
I. ADMINISTRATIVE AND OPERATING COSTS		
1. COORDINATING UNIT, Athens, Greece		
- Secretariat's Personnel and Operating Costs	832,149	851,902
- MEDPOL Personnel	498,000	510,000
- Operating Costs covered by the Greek Counterpart Contribution	400,000	400,000
2. MEDPOL COOPERATING AGENCIES	265,000	271,000
3. REGIONAL MARINE POLLUTION EMERGENCY RESPONSE CENTRE FOR THE MEDITERRANEAN (REMPEC)	554,500	557,500
4. BLUE PLAN REGIONAL ACTIVITY CENTRE (BP/RAC)	457,000	472,000
5. PRIORITY ACTIONS PROGRAMME REGIONAL ACTIVITY CENTRE (PAP/RAC)	340,000	352,000
6. SPECIALLY PROTECTED AREAS REGIONAL ACTIVITY CENTRE (SPA/RAC)	277,000	277,000
7. ENVIRONMENT REMOTE SENSING REGIONAL ACTIVITY CENTRE (ERS/RAC)	0	0
8. SECRETARIAT FOR THE CLEANER PRODUCTION REGIONAL ACTIVITY CENTRE (CP/RAC)	0	0
	SUB-TOTAL	3,623,649 3,691,402
PROGRAMME SUPPORT COSTS*	419,074	427,882
TOTAL ADMINISTRATIVE AND OPERATING COSTS	4,042,723	4,119,284

* The Programme Support Costs of 13% is not charged to the Greek Counterpart Contribution.

	Approved Budget (in US \$)	
	1998	1999
II. ACTIVITIES		
A. ACTIVITIES TO BE FUNDED THROUGH THE MTF (excluding the EU voluntary contribution)		
1. PROGRAMME COORDINATION	350,000	510,000
2. POLLUTION PREVENTION AND CONTROL	802,660	597,751
3. PROTECTION OF BIOLOGICAL DIVERSITY	120,000	70,000
4. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SUSTAINABLE MANAGEMENT OF COASTAL ZONES	217,000	170,000
5. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES	46,000	35,000
6. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SPECIFIC ACTIVITIES	110,000	100,000
	SUB-TOTAL	1,645,660
PROGRAMME SUPPORT COSTS	213,936	192,758
TOTAL ACTIVITIES FUNDED THROUGH THE MTF	1,859,596	1,675,509

	Approved Budget (in US \$)	
	1998	1999
B. ACTIVITIES TO BE FUNDED THROUGH THE EU VOLUNTARY CONTRIBUTION		
1. PROGRAMME COORDINATION (support to NGO's and to MCS D information activities)	18,700	18,400
2. POLLUTION PREVENTION AND CONTROL	55,000	90,000
3. PROTECTION OF BIOLOGICAL DIVERSITY	120,000	155,000
4. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SUSTAINABLE MANAGEMENT OF COASTAL ZONES	270,053	133,026
5. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES	20,000	80,000
6. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SPECIFIC ACTIVITIES	70,000	75,000
	SUB-TOTAL	553,753
TOTAL ACTIVITIES TO BE FUNDED THROUGH THE EU VOLUNTARY CONTRIBUTION	553,753	551,426

**AGGREGATE BUDGET COVERING ACTIVITIES , ADMINISTRATIVE AND OPERATING COSTS
FOR THE COORDINATING UNIT AND THE CENTRES:**

	Approved Budget (in US \$)	
	1998	1999
COORDINATING UNIT, Athens, Greece		
TOTAL ACTIVITIES	453,700	553,400
TOTAL ADMINISTRATIVE COSTS	1,232,149	1,251,902
TOTAL	1,685,849	1,805,302
MEDPOL		
TOTAL ACTIVITIES	705,660	576,751
TOTAL ADMINISTRATIVE COSTS	763,000	781,000
TOTAL	1,468,660	1,357,751
REGIONAL MARINE POLLUTION EMERGENCY RESPONSE CENTRE FOR THE MEDITERRANEAN (REMPEC)		
TOTAL ACTIVITIES	192,000	121,000
TOTAL ADMINISTRATIVE COSTS	554,500	557,500
TOTAL	746,500	678,500
BLUE PLAN REGIONAL ACTIVITY CENTRE (BP/RAC)		
TOTAL ACTIVITIES	240,000	200,000
TOTAL ADMINISTRATIVE COSTS	457,000	472,000
TOTAL	697,000	672,000
PRIORITY ACTIONS PROGRAMME REGIONAL ACTIVITY CENTRE (PAP/RAC)		
TOTAL ACTIVITIES	328,053	323,026
TOTAL ADMINISTRATIVE COSTS	340,000	352,000
TOTAL	668,053	675,026
SPECIALLY PROTECTED AREAS REGIONAL ACTIVITY CENTRE (SPA/RAC)		
TOTAL ACTIVITIES	240,000	225,000
TOTAL ADMINISTRATIVE COSTS	277,000	277,000
TOTAL	517,000	502,000
ENVIRONMENT REMOTE SENSING REGIONAL ACTIVITY CENTRE (ERS/RAC)		
TOTAL ACTIVITIES	40,000	35,000
TOTAL ADMINISTRATIVE COSTS	0	0
TOTAL	40,000	35,000
SECRETARIAT FOR THE CLEANER PRODUCTION REGIONAL ACTIVITY CENTRE (CP/RAC)		
TOTAL ACTIVITIES	0	0
TOTAL ADMINISTRATIVE COSTS	0	0
TOTAL	0	0
PROGRAMME SUPPORT COSTS	633,010	620,640
GRAND TOTAL	6,456,072	6,346,219

SOURCES OF FINANCING

The following scheme of sources of financing for the programme budget for 1998-1999 is approved to the Contracting Parties. For pledges which have not been paid for quite a number of years, a review of the situation will have to be conducted in order to make a realistic assessment of the financial situation of UNEP/MAP.

A. Income	1998	1999	Biennium 1998-99
MTF Contributions	4,651,757	4,744,793	9,396,550
Greek Counterpart Contribution	400,000	400,000	800,000
UNEP Counterpart Contribution	50,000	50,000	100,000
Total Contributions	5,101,757	5,194,793	10,296,550
Unpaid Pledges for 1996 and prior years*	650,562	0	650,562
Adjustment of the Revolving Fund**	150,000	600,000	750,000
Total expected income	5,902,319	5,794,793	11,697,112
B. Commitments			
Commitments	5,269,309	5,174,153	10,443,462
Programme Support Costs	633,010	620,640	1,253,650
Total commitments	5,902,319	5,794,793	11,697,112

* The amount for Unpaid Pledges for 1996 and prior years does not include US\$ 469,976, the recurrent unpaid pledges since 1991 of former Yugoslavia which are not expected to be paid soon.

** The Revolving fund had to be adjusted to satisfy actual MAP needs.

A. Income	1998	1999	Biennium 1998-99
Voluntary Contribution of EU	553,753	551,426	1,105,179
B. Commitments			
Activities funded through the EU Voluntary Contribution	553,753	551,426	1,105,179
Total commitments	553,753	551,426	1,105,179

Note: During the finalisation of this document part of the unpaid pledges for 1996 and prior years were paid (more specifically, the Libyan Arab Jamahiriya paid an amount of US\$ 295,405). These funds will be used for the 1998 activities.

Contributions for 1998-1999 (in US dollars):

Contracting Parties	%	Ordinary Contributions to MTF for 1998 (in US \$)*	Ordinary Contributions to MTF for 1999 (in US \$)**
Albania	0.07	3,256	3,321
Algeria	1.05	48,844	49,821
Bosnia and Herzegovina	0.3	13,956	14,235
Croatia	0.97	45,122	46,024
Cyprus	0.14	6,513	6,643
EU	2.5	116,294	118,621
Egypt	0.49	22,794	23,250
France	37.97	1,766,272	1,801,597
Greece	2.81	130,714	133,328
Israel	1.47	68,381	69,748
Italy***	31.37	1,459,256	1,488,441
Lebanon	0.07	3,256	3,321
Libya	1.97	91,640	93,473
Malta	0.07	3,256	3,321
Monaco	0.07	3,256	3,321
Morocco	0.28	13,025	13,286
Slovenia	0.67	31,167	31,790
Spain	14.99	697,299	711,244
Syria	0.28	13,025	13,286
Tunisia	0.21	9,769	9,964
Turkey	2.25	104,664	106,758
Sub-total	100	4,651,757	4,744,793
Host Country(Greece)		400,000	400,000
UNEP Environment Fund		50,000	50,000
TOTAL		5,101,757	5,194,793

* The 1998 Contributions represent a 2% increase over the 1997 Ordinary Contributions to the MTF.

** The 1999 Contributions represent a 2% increase over the 1998 Ordinary Contributions to the MTF.

*** The level of contribution of Italy to the MTF for 1998 and for 1999 remains at the level of the 1997 ordinary contribution (i.e. US\$ 1,430,643). Exceptionally, the increase in the contributions will be covered in kind for activities already appearing in the budget.

Estimated Counterpart Contributions in Cash/Kind of Contracting Parties hosting Regional Activity Centres and of the U.N. Agencies participating in the MEDPOL Programme. The amounts have been provided to UNEP by the respective Centres and Agencies.

Countries		1998 (,000 US\$)	1999 (,000 US \$)
Croatia	PAP/RAC	150	150
France	BP/RAC	400	400
Italy	ERS/RAC	300	300
Malta	REMPEC	75	75
Spain	CP/RAC	119	119
Tunisia	SPA/RAC	70	70
U.N. Agencies			
WHO	MED POL	100	100
WMO	MED POL	50	50
IAEA	MED POL	300	300
UNESCO/IOC	MED POL	80	80

I. COORDINATION

1. PROGRAMME COORDINATION

Objectives

To prepare the work programme and budget for the Mediterranean Action Plan for review by the meetings of the Bureau, the National Focal Points and for review and approval by the ordinary meetings of the Contracting Parties.

To provide Secretariat services to the meetings of the Bureau, the National Focal Points and the Contracting Parties as well as to act as Secretariat to the MCSD.

To coordinate MAP activities with participating UN Agencies, intergovernmental and non-governmental organizations, the MAP Regional Activity Centres and relevant Secretariats of environmental Conventions. To manage the Mediterranean Trust Fund (MTF).

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
11th Ordinary Meeting of the Contracting Parties to review and approve the 2000-1 programme budget	MEDU				115,000		80,000*
Meeting of the MAP National Focal Points to consider the progress of the Action Plan and prepare the 2000-1 programme budget	MEDU				100,000		
Fourth Meeting of the Mediterranean Commission on Sustainable Development (MCSD)	MEDU			100,000*			
Fifth Meeting of the Mediterranean Commission on Sustainable Development (MCSD)	MEDU						100,000
Follow-up of the recommendations of the MCSD	MEDU	15,000			5,000		
Meetings of the Steering Committee of the Mediterranean Commission on Sustainable Development (one per year)	MEDU	20,000			20,000		
Meetings of the Bureau (two per year) to review the progress of the Action Plan, advise the Secretariat on matters arisen since the meeting of Contracting Parties, and decide on programme/ budget adjustments	MEDU	40,000			40,000		
Meeting of the Regional Activity Centres' Directors and the Coordinating Unit for programming and coordination of MAP activities (one per year)	MEDU	10,000			10,000		
Training of national officials at MED Unit on MAP programmes and procedures	MEDU	10,000			10,000		
Second Meeting of Mediterranean Government designated experts on Liability and Compensation	MEDU	20,000		60,000			
Presentation Conferences for CAMP projects	MEDU	30,000			30,000		

* To be hosted by the Government of Malta.

** To be hosted by the Principality of Monaco.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
Support to countries to apply the participation approach in the process of decision-making related to Sustainable Development at the national and local levels	MEDU	10,000					
Support to non-governmental organisations and other major actors	MEDU	20,000	8,700		25,000	8,400	
TOTAL ACTIVITIES		175,000	8,700	160,000	355,000	8,400	180,000

2. INFORMATION AND PARTICIPATION

Objectives

The Coordinating Unit undertakes the publication of Medwaves and MAP technical reports, and manages a Documentation Unit (library). The Coordinating Unit allocates funds for public information activities concerning the environment.

In 1998, the Unit intends to initiate the publication of a biennial report on MAP activities aimed at the wider public.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
Publication and dissemination of MAP Technical Reports	MEDU	15,000			15,000		
Library services	MEDU	20,000			20,000		
Preparation, translation, printing and dissemination of MEDWAVES (Arabic, English and French)	MEDU	40,000			40,000		
Support to public awareness campaigns	MEDU	20,000			20,000		
Support to MCSD on information and participation	MEDU		10,000	20,000		10,000	20,000
Preparation, editing and translation of MAP brochures and reports	MEDU	30,000		50,000	10,000		20,000
Printing and dissemination of brochures and reports, including the use of the Internet	MEDU	20,000			20,000		
TOTAL ACTIVITIES		145,000	10,000	70,000	125,000	10,000	40,000

3. STRENGTHENING OF THE LEGAL FRAMEWORK

Objectives

To seek the early entry into force of the new MAP legal instruments and to promote their early implementation by the Contracting Parties.

To formulate and adopt appropriate rules and procedures for the determination of liability and compensation for damages resulting from the pollution of the marine environment.

To promote the adoption of relevant national legislation and to ensure the compliance of the Contracting Parties to the provisions of the Barcelona Convention and its protocols.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
Legal assistance to the Secretariat	MEDU	15,000			15,000		
Assistance to countries to develop their national legislation and national enforcement of control mechanisms in line with the implementation of the Convention and its Protocols and the adopted protection measures	MEDU	15,000			15,000		
TOTAL ACTIVITIES		30,000	0	0	30,000	0	0

II. POLLUTION PREVENTION AND CONTROL

Objectives

To assist Contracting Parties to formulate and implement action plans, programmes and measures for the prevention and reduction of pollution from land-based activities, as part of the implementation of the LBS Protocol.

To assist Contracting Parties to organize and implement the MED POL programme and in particular trend monitoring programmes, biological effects monitoring programmes and compliance monitoring programmes to assess loads and levels of pollution, the effectiveness of measures taken and the compliance with existing legislation.

To make use of remote-sensing techniques for the assessment and control of marine pollution.

To assist Contracting Parties in developing and implementing regional, sub-regional and national programmes related to the prevention of, response to and cooperation in cases of accidental sea-based pollution and pollution from port operations (Emergency Protocol).

To assist Contracting Parties to implement the Dumping Protocol and to initiate the preparation for the future implementation of the Hazardous Wastes and the Offshore Protocols.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
<u>Action Plans</u> Formulation of Action Plans for the reduction of pollution	MEDPOL	40,000			40,000		20,000
Identification and assessment of Hot Spots	MEDPOL	40,000		10,000*	30,000		15,000*
Identification of policies and implementation strategies for the elimination of TPBs, for waste water management, and for prevention and control of releases of nutrients	MEDPOL	80,000				40,000	
Target-oriented research	MEDPOL	40,000			30,000		50,000
<u>Enforcement</u> Compliance and enforcement of legislation including capacity building for systems of inspection	MEDPOL	50,000		50,000		40,000	25,000*
Design and implementation of national compliance monitoring including data quality assurance	MEDPOL	50,660		30,000	46,751		40,000
Enhanced direct assistance for selected countries (capacity-building programmes)	MEDPOL	30,000		120,000	60,000		60,000
<u>Implementation and Control</u> Assistance for implementation of adopted action plans	MEDPOL				40,000		100,000
Design and implementation of trend and biological effects monitoring	MEDPOL	60,000			50,000		
Enhanced direct assistance for selected countries (capacity-building programmes)	MEDPOL	100,000	45,000	50,000	80,000		60,000

* Funds are secured through WHO.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
Capacity building (training and fellowships) and data quality assurance	MEDPOL	60,000			60,000		40,000
Target oriented research	MEDPOL	40,000					40,000
<u>Coordination</u> 'Meeting of MED POL National Coordinators	MEDPOL				20,000		40,000
Government-designated Experts' Meeting on implementation of LBS Protocol	MEDPOL			60,000			
<u>Dumping Protocol</u> Assistance for implementation of the Dumping Protocol	MEDPOL	10,000			10,000		
<u>Hazardous Wastes and Offshore Protocols</u> Assistance for implementation of the Hazardous Wastes and Offshore Protocols	MEDPOL	10,000			10,000		
<u>Remote Sensing</u> Devising and monitoring activities supported by remote-sensing for the surveillance and control of oil pollution	ERS/RAC	10,000			10,000		
Implementation of monitoring activities supported by remote-sensing for the surveillance and control of oil pollution	ERS/RAC			20,000			20,000
Implementation of monitoring activities based on remote-sensing supporting trend monitoring	ERS/RAC			35,000			35,000
<u>Prevention of, response to and cooperation in cases of accidental marine pollution (Emergency Protocol)</u> Assistance to States in developing their national system for preparedness and response	REMPEC	10,000			10,000		
Assistance to States in developing port emergency response system	REMPEC	10,000			6,000		
Development of the Regional Information System	REMPEC	6,000			4,000		
Meeting of REMPEC Focal Points combined with Meeting of legal experts	REMPEC	65,000					
Regional training courses	REMPEC	75,000			75,000		
Development of REMPEC maritime transport oriented database TROCS	REMPEC		10,000			10,000	
Technical assistance to States in the organisation of national training courses	REMPEC	8,000			8,000		
Assistance to States in case of emergency (Mediterranean Assistance Unit)	REMPEC	8,000			8,000		
Three year project for the development of spill response capabilities of Cyprus, Egypt and Israel	REMPEC			357,000*			214,000*
Port Reception facilities for collecting ship-generated garbage, bilge waters and oily wastes	REMPEC			290,000**			398,000**

* Funds are secured through the EU/DGXI/LIFE Programme.

** Funds are secured through the EU/EuroMediterranean Partnership Programme.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
Preparedness and response to marine pollution by ships: Sensitivity mapping	REMPEC			425,000			403,000
Salvage Capacity	REMPEC			182,000			
<u>Cleaner Production:</u> Meeting of Focal Points, Meeting of Experts, Cooperation with MCSD, and publications	CP/RAC			113,000*			113,000*
TOTAL ACTIVITIES		802,660	55,000	1,742,000	597,751	90,000	1,673,000

* Funds will be provided by the Spanish Government.

III. PROTECTION OF BIOLOGICAL DIVERSITY

Objectives

The general objective of the proposed activities is to improve the protection and management of the Mediterranean natural heritage through the implementation of the Mediterranean Action Plan and the other relevant instruments adopted within its framework, in particular the SPA Protocol and the Action Plans for the conservation of endangered species (monk seal, marine turtles and cetaceans).

The specific objectives of the activities are:

- The assessment of the status of biological diversity in the Mediterranean in order to identify appropriate measures for its conservation.
- The establishment of adequate legislation for the effective protection and management of the natural heritage of the Mediterranean region.
- The establishment of effective forms of management of the natural heritage, in order to ensure its conservation and to promote its social and economic aspects.
- The improvement of the Mediterranean countries' capabilities in the field of conservation and management of the natural heritage.
- The improvement of public awareness and information on the value of biological diversity and the issues related to its conservation and sustainable use.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
<u>Legal Measures</u> Assistance to countries in the setting up and enforcement of their national legislation in the field of sites and species conservation	SPA/RAC	10,000			10,000		
<u>Planning and Management</u> Expert Meeting to evaluate the three action plans for the conservation of species adopted within MAP	SPA/RAC	40,000		10,000*			
Elaboration of an Action Plan for the conservation of marine vegetation	SPA/RAC		20,000			25,000	
Implementation of the Action Plans for the conservation of the Mediterranean Marine Turtles, Cetaceans and management of the Monk Seal	SPA/RAC					30,000	
Assistance for the implementation of CAMPs	SPA/RAC	20,000					
Assistance to countries for the establishment and management of SPAs	SPA/RAC		20,000			20,000	
Assistance to countries in the setting up and implementation of national strategies in the field of biodiversity conservation	SPA/RAC		20,000			20,000	
<u>Exchange of experience and strengthening of national capabilities</u> Training sessions on the scientific and technical aspects of the conservation of the natural common heritage	SPA/RAC	40,000		10,000		30,000	

* To be hosted by the Government of Greece.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
Meeting on endangered species in the Mediterranean*	SPA/RAC	10,000					
SPA National Focal Points Meeting	SPA/RAC				40,000		
<u>Data Collection and Periodic Assessment</u> Collection of data and assistance to countries for the preparation of inventories of species and sites	SPA/RAC		40,000			30,000	
<u>Public Information</u> Production of specific material for public awareness and information (movable exposition) on the value and conservation of biological diversity	SPA/RAC		20,000		20,000		10,000
TOTAL ACTIVITIES		120,000	120,000	20,000	70,000	155,000	10,000

* Co-organised with Monaco and the Bern Convention.

IV. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SUSTAINABLE MANAGEMENT OF COASTAL ZONES

Objectives

Sustainable management of coastal zones is one of MCSD's priority themes. Activities will focus on the development of policies for the sustainable management of coastal zones as well as on capacity building.

Most MAP components (MEDU, MEDPOL and RACs) are concerned with the sustainable management of coastal regions and are implementing complementary activities in this respect. Thus, for instance, BP/RAC is taking a systemic approach at the level of the entire Mediterranean basin with special focus on the coastal regions, whereas PAP is primarily concerned with smaller geographical areas where priority actions are proposed. As a result their respective major outputs are clearly of different nature (Fascicules versus guidelines, for instance).

More specifically, the activities will include the following:

- to develop tools and techniques for the implementation of policies and strategies of coastal zone planning and management;
- to enhance capacity building for coastal planning in the region;
- to ensure coastal protection through legal means;
- to exchange expertise concerning policies and strategies for coastal protection; and
- to implement and, if possible complete the six on-going CAMP projects in Algeria, Morocco, Israel, Malta, Lebanon and Slovenia.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
Implementation of CAMPs in Morocco, Israel, Malta, Algeria, Lebanon and Slovenia	MEDU	85,000		100,000	20,000	5,000	100,000
Pollution assessment and control in CAMPs areas	MEDPOL	20,000					
Contribution to CAMP activities through systemic and prospective analysis, actors strategy, management tools at local and national levels	BP/RAC		50,000			10,000	
Implementation of CAMPs (consultants, consultations, meetings, training, sub-contracts)	PAP/RAC		180,053	100,000	65,000	56,026	100,000
Planning of Activities to be implemented in CAMPs (preliminary studies, consultations, meetings)	ERS/RAC			20,000			25,000
Implementation of CAMPs (Technical assistance to local counterparts, consultations, meetings)	ERS/RAC		20,000				30,000
<u>Integrated Coastal Area Management (ICAM):</u> Development of policies and strategies for coastal planning and sustainable management of coastal areas including carrying-capacity studies and training courses	PAP/RAC	42,000	20,000	66,000	10,000	62,000	173,000
<u>Systemic and Prospective Activities</u> Overall Mediterranean prospective analysis, training in prospective approaches and preparation of fascicules	BP/RAC	30,000		20,000	30,000		20,000
<u>Support to the MCSD Activities:</u> Sustainable Management of coastal zones: good practices guides and regional guidelines	PAP/RAC	30,000			30,000		

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
<u>Capacity Building</u> Preparation of meetings with Mediterranean countries' planners and decision-makers as well as with representatives from remote-sensing centres aimed at demonstrating the effective contribution given by Information Systems based on Earth Observation data to the countries decision making processes	ERS/RAC	10,000			15,000		
TOTAL ACTIVITIES		217,000	270,053	306,000	170,000	133,026	448,000

V. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES

Objectives

Follow-up activities on the management of natural resources will be pursued in the framework of the MCSD in which all Regional Activity Centres are involved. The methodology which has been proposed will be tested in the field, and activities will focus on the practical application of results and capacity building.

Water resources management will be dealt with in a special way: all other activities tackled hitherto, linked directly or indirectly to water resources management, and natural resources management in general (including agriculture and forest), would be integrated (coastal planning, GIS, environmental assessment and planning, etc.).

BP/RAC will study current and future issues related to water resources and management of water demand at watershed levels for the whole Mediterranean basin, whereas PAP/RAC will focus mainly on islands, specific water deficient areas and singular river basin linked to adjacent coastal areas.

As for soil protection, the objectives are to evaluate and monitor the vulnerability of soil resources and to protect and preserve soil by implementing preventive measures and to promote rehabilitation of dredged lands and restoration of plant cover. Measures against erosion and desertification will be promoted.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
<u>Water Resources Management</u> Development of DSS for water resources management including organisation of expert meetings	PAP/RAC	16,000		167,000		50,000	166,000
Management of water resources and water demand: Specific studies related to MCSD recommendations on issues concerning policies, losses and wastes, also in connection with land use	BP/RAC		20,000			20,000	
Support to MCSD activities related to water demand management in urban areas	PAP/RAC	10,000			10,000		
Implementation of a multidisciplinary approach for the assessment of land resources in arid lands (water, soil, vegetation) and of their suitability to proper exploitation	ERS/RAC			15,000		10,000	
Participation to the implementation of an Information System for water management, by establishing a network among remote-sensing Centers in order to share data and results from already carried-out and/or ongoing activities relevant to the dealt-with topic	ERS/RAC			20,000			20,000
<u>Soil Protection</u> Expert meeting and assistance to countries	PAP/RAC	20,000		120,000	25,000		120,000
<u>Aquaculture</u> Ecologically sound integrated management of aquaculture	PAP/RAC			100,000			120,000
TOTAL ACTIVITIES		46,000	20,000	422,000	35,000	80,000	426,000

VI. INTEGRATING ENVIRONMENT AND DEVELOPMENT: SPECIFIC ACTIVITIES

This chapter covers the following:

- The conceptual activities supporting the work of the MCSD (Observatory, indicators etc.); and
- activities supporting the thematic working groups of the MCSD dealing with the interaction between the economic sector and the environment.

The indicators activity aim at:

- including Mediterranean and MAP in the global indicators network;
- adapting results of worldwide research on indicators to the Mediterranean context and inform, and when possible train, Mediterranean partners and concerned experts; and
- providing assistance to countries, mainly through the implementation of national observatories and UNCSO test exercises on indicators.

Whereas MAP funds (MTF and EU voluntary contributions) are mainly devoted to background activities (statistics, databases, thematic analysis, country profiles and national observatories), EU/DGX1/LIFE funds provide support to a major project to indicators of sustainable development for the Mediterranean region and METAP assistance goes for the environmental performance indicators.

Concerning the MCSD activities, for the indicators as for other issues, MAP funds will be devoted to preparation of background documents and organisation of working groups sessions, whereas additional funds need to be raised for the regional workshops where appropriate recommendations will be discussed, as was the case for the short-term priority issues.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
Mediterranean Environment and Development Observatory (Data Base, statistics and Indicators, Institutional analysis/country profiles, socio-economic and environment thematic studies, assistance to national observatories, mainly seed money to maintain activities and raise outside funds)	BP/RAC		60,000	300,000*		60,000	300,000*
Environment Performance Indicators - METAP III Programme Performance Monitoring	BP/RAC			250,000**			100,000**
State of Environment and Sustainable Development in the Mediterranean	BP/RAC			50,000			50,000
<u>Support to MCSD working groups</u> Workshops and related publications (studies, recommendations)	BP/RAC			150,000			150,000
<u>Support activities to MCSD priority subjects</u> Analytical reports, strategic and policy recommendations and organization of working groups and workshops (seed money) jointly with concerned Task Managers Sustainable Development indicators	BP/RAC	30,000			30,000		
<u>Support activities to MCSD priority subjects</u> Sustainable Tourism	BP/RAC	20,000			20,000		
	PAP/RAC		10,000	24,000		15,000	39,000

* Funds are secured through the EU/DGX1/LIFE Programme

** Funds are secured through the World Bank METAP Programme.

ACTIVITY	OFFICE	Approved Budget (in US \$)					
		1998			1999		
		MTF	EU	EXT	MTF	EU	EXT
<u>Support activities to MCSD priority subjects</u> Management of urban/rural development and seed money for trade and environment	BP/RAC	30,000			30,000		
<u>Support activities to MCSD priority subjects</u> Industry and sustainable development	MEDPOL	30,000			20,000		
<u>Solid Wastes Management:</u> Workshop on the selection, and on the manner of financing of the construction, operation and maintenance of solid waste collection and treatment	PAP/RAC			15,000			35,000
TOTAL ACTIVITIES		110,000	70,000	789,000	100,000	75,000	674,000

ADMINISTRATIVE AND OPERATING COSTS:**1. COORDINATING UNIT, Athens, Greece**

	Approved Budget (in US\$)			Approved Budget (in US\$)					
	1997			1998			1999		
		MTF	GREEK CP		MTF	GREEK CP		MTF	GREEK CP
Professional Staff	m/m			m/m			m/m		
Coordinator - D.2	12	122,000		12	125,000		12	128,000	
Deputy Coordinator - D.1	12	116,000		12	119,000		12	122,000	
Senior Programme Officer/ Economist - P.5	12	115,000		12	118,000		12	121,000	
Fund Management/Admin. Officer - P.4	12	*		12	*		12	*	
MEDPOL Coordinator - P.5	6	55,000		12	112,000		12	116,000	
MEDPOL Senior Programme Officer - P.5	12	115,000		12	118,000		12	121,000	
MEDPOL First Officer/ Marine Scientist - P.4	12	89,000		12	91,000		12	94,000	
Computer Operations Officer - P.4	12	88,000		12	90,000		12	92,000	
Total Professional Staff		700,000			773,000			794,000	
Administrative Support									
Information Assistant - G.6/G.7	12	34,000		12	35,000		12	36,000	
Administrative Assistant - G.6/G.7	12	*		12	*		12	*	
Senior Secretary - G.5	12	29,000		12	30,000		12	30,000	
Administrative Clerk - G.4	12	*		12	*		12	*	
Computer Info./System Assistant - G.5	12	*		12	*		12	*	
Budget Assistant - G.4/G.5	12	29,000		12	30,000		12	30,000	
Admin Assistant - G.4/G.5	12	*		12	*		12	*	
Secretary - G.4	12	28,000		12	29,000		12	29,000	
Secretary - G.4	12	28,000		12	29,000		12	29,000	
Secretary (MEDPOL) - G.4	12	28,000		12	29,000		12	29,000	
Secretary (MEDPOL) - G.4	12	28,000		12	29,000		12	29,000	
Secretary (MEDPOL) - G.4	12	28,000		12	29,000		12	29,000	
Telecommunication Clerk - G.3/G.4	12	26,000		12	27,000		12	27,000	
Clerk/Driver - G.3	12	25,000		12	26,000		12	26,000	
Office Clerk/Typist - G.3	12	24,000		12	25,000		12	25,000	
Clerk/Messenger - G.1/G.2	12	19,000		12	19,000		12	20,000	
Temporary Assistance		15,000			10,000			10,000	
Overtime		19,000			15,000			15,000	
Hospitality					10,000			12,000 **	
Total Administrative support		360,000			372,000			376,000	
Travel on Official Business		106,000			109,000			111,000	
Office Costs									
Rental			122,000			130,000 ***			137,000
Other Office costs (including sundry) ****		54,000	278,000		76,149	270,000		80,902	263,000
Total Office costs		54,000	400,000		76,149	400,000		80,902	400,000
TOTAL ADMIN. COSTS		1,220,000	400,000		1,330,149	400,000		1,361,902	400,000

* Paid under Programme Support Costs.

** Contracting Parties Meeting.

*** In the case of a change in the location of premises, the adjustment of the budget, due to the change of the cost, to be approved by the Bureau.

**** Computers/ office automation/ communications.

2. MED POL COOPERATING AGENCIES

The budget reflects the structure approved at the Contracting Parties Meeting in Montpellier in 1996. The post of the IAEA Maintenance Engineer (IAEA/MEL) was terminated in 1997.

		Approved Budget (in US\$)	Approved Budget (in US\$)	
		1997	1998	1999
		MTF	MTF	MTF
Professional Staff				
WHO Programme Officer/Senior Scientist, MAP Coordinating Unit (Athens) P.5	m/m 12	110,000	113,000	115,000
IAEA Maintenance Engineer (MEL) (Monaco) P.3	6	95,000	-	-
Total Professional Staff		205,000	113,000	115,000
Administrative Support				
WHO Secretary MAP Coordinating Unit (Athens) G.5	12	29,000	30,000	30,000
IAEA Laboratory Assistant MEL (Monaco) G.6	12	55,000	56,000	58,000
WHO Temporary Assistance - (Athens)	6	15,000	-	-
WMO Temporary Assistance - WMO/HQ (Geneva)		13,000	13,000	14,000
IOC Temporary Assistance - IOC/HQ (Paris)		13,000	13,000	14,000
Total Administrative Support		125,000	112,000	116,000
Travel on Official Business				
WHO (Athens)		16,000	15,000	15,000
WMO (Geneva)		10,000	5,000	5,000
IAEA (Monaco)		20,000 *	15,000 *	15,000 *
IOC of UNESCO (Paris)		9,000	5,000	5,000
Total Travel		55,000	40,000	40,000
Office costs		**	**	**
TOTAL PERSONNEL AND OPERATING COSTS		385,000	265,000	271,000

* Includes field missions for the Data Quality Assurance Programme.

** Office costs incurred by WHO staff stationed in the Coordinating Unit in Athens are covered by MED Unit office costs. Office costs incurred by all Agencies at their own Headquarters or Regional Offices are covered by the respective agencies as part of their counterpart contributions.

3. **REGIONAL MARINE POLLUTION EMERGENCY RESPONSE CENTRE FOR THE MEDITERRANEAN (REMPEC) Valletta, Malta**

Cooperating Agency IMO

		Approved Budget (in US\$)	Approved Budget (in US\$)	
		1997	1998	1999
		MTF	MTF	MTF
Professional Staff *	m/m			
Director - D.1	12	128,000	131,000	134,000
Technical Expert - P.4	12	112,000	115,000	115,000
Chemist - P.4	12	102,000	105,000	105,000
Total Professional Staff		342,000	351,000	354,000
Administrative Support				
Information Assistant - G.6	12	20,000	21,000	21,000
Senior Secretary/Admin. Assistant G.6	12	20,000	21,000	21,000
Clerk Secretary - G.4	12	17,000	17,000	17,000
Clerk/Secretary - G.4	12	17,000	17,000	17,000
Caretaker/Docs Reproducer - G.3	12	16,000	16,000	16,000
Total Administrative Support		90,000	92,000	92,000
Travel on Official Business		35,000	35,000	35,000
Office costs		85,000	76,500	76,500
TOTAL PERSONNEL AND OPERATING COSTS		552,000	554,500	557,500

* REMPEC suggested a P.2 Post of Administrative and Finance Officer in Malta. The cost for such a post would be US\$ 78,000 in 1998 and US\$ 85,000 in 1999. The Secretariat could not secure the necessary funds for this post.

4. BLUE PLAN REGIONAL ACTIVITY CENTRE (BP/RAC)
Sophia Antipolis, France

The staff and operating costs annual increase is about 3 %. In order to cope with the Centre's growing activities within MAP and with other international partners (EC, METAP, etc..), a scientific director, to be seconded by the French Government, is expected to be appointed in early 1998.

		Approved Budget (in US\$)	Approved Budget (in US\$)	
		1997	1998	1999
		MTF	MTF	MTF
Professional Staff	m/m			
Chairman	12			
Director	12	*	*	*
Deputy Director/Observatory Coordinator	12	100,000	104,000	108,000
Scientific Director	12	*	*	*
Systemic and Prospective Officer	12	72,000	75,000	77,000
Computer and Data Base Officer	12	42,000 **	44,000 **	46,000 **
Environment Officer	12	***	***	***
Institutional and Documentation Officer	12	***	***	***
GIS Officer	12	***	***	***
Studies Officer	12	*	*	*
Administrative and Financial Officer	12	47,000 **	49,000 **	52,000 **
Total Professional Staff		261,000	272,000	283,000
Administrative Support				
Data Collection Assistant/Senior Secretary	12	43,000	45,000	47,000
Bilingual Secretary	12	43,000	45,000	47,000
Secretary	12	****	****	****
Documentation Assistant	12	****	****	****
Temporary Assistance		20,000	20,000	20,000
Total Administrative Support		106,000	110,000	114,000
Travel on Official Business		30,000	30,000	30,000
Office costs		50,000	45,000	45,000
TOTAL PERSONNEL AND OPERATING COSTS		447,000	457,000	472,000

* Seconded by the French Government.

** Supplemented by the French Government and local/ regional authorities.

*** Covered by EC/DGX1/Life for 1998 and 1999.

**** Covered by the French Government through the operational budget.

**5. PRIORITY ACTIONS PROGRAMME REGIONAL ACTIVITY CENTRE (PAP/RAC)
Split, Croatia**

The increase in personnel costs is necessary due to a continued trend of increase of salaries in the public sector of Croatia (official data for 1996 state the increase of 7.3%), threatening to make the salaries in the Centre uncompetitive. In spite of the recent rise of the US\$ exchange rate, it is still below the values recorded in Croatia in 1993-94, and can be considered unfavourable.

The increase of office costs is necessary due to a great increase of those prices in Croatia, and to the need to renew part of the computer equipment.

		Approved Budget (in US\$)	Approved Budget (in US\$)	
		1997	1998	1999
		MTF	MTF	MTF
Professional Staff	m/m			
Director	12	44,000	46,000	47,000
Deputy Director	12	32,000	34,000	35,000
Total Professional Staff		76,000	80,000	82,000
Administrative Support				
Senior Assistant to Projects/Translator	12	23,000	24,000	25,000
Assistant to Projects/Translator	12	22,000	23,000	24,000
Assistant to Projects/Translator	12	22,000	23,000	24,000
Assistant to Projects/Translator	12	22,000	23,000	24,000
Administrative Assistant	12	22,000	23,000	24,000
Financial Assistant	12	22,000	23,000	24,000
Temporary Assistance		9,000	12,000	14,000
Total Administrative Support		142,000	151,000	159,000
Travel on Official Business		27,000	28,000	30,000
Office costs		83,000	81,000	81,000
TOTAL PERSONNEL AND OPERATING COSTS		328,000	340,000	352,000

6. **SPECIALLY PROTECTED AREAS REGIONAL ACTIVITY CENTRE (SPA/RAC)**
Tunis, Tunisia

		Approved Budget (in US\$)	Approved Budget (in US\$)	
		1997	1998	1999
		MTF	MTF	MTF
Professional Staff	m/m			
Director	12	33,000 *	33,000 *	33,000 *
Expert	12	16,500 *	16,500 *	16,500 *
Expert	12	62,500	62,500	62,500
Data Researcher	12	44,000	44,000	44,000
Total Professional Staff		156,000	156,000	156,000
Administrative Support				
Administrative Assistant	12	14,000	14,000	14,000
Bilingual Secretary	12	12,000	12,000	12,000
Driver	12	6,500	6,500	6,500
Finance Officer	12	**	**	**
Cleaner	12	-	**	**
Caretaker	12	-	**	**
Temporary Assistance		-	9,500	9,500
Total Administrative Support		32,500	42,000	42,000
Travel on Official Business		25,000	25,000	25,000
Office costs		60,500	54,000	54,000
TOTAL PERSONNEL AND OPERATING COSTS		274,000	277,000	277,000

* Represents funds allocated to supplement the salary paid by the Host Country.

** Paid by the Host Country.

**7. ENVIRONMENT REMOTE SENSING REGIONAL ACTIVITY CENTRE (ERS/RAC)
Palermo, Italy**

	Approved Budget (in US\$)	
	1998	1999
TOTAL PERSONNEL AND OPERATING COSTS	*	*

* Administrative and Operating Costs are fully covered by the Government of Italy.

**8. CLEANER PRODUCTION REGIONAL ACTIVITY CENTRE (CP/RAC)
Barcelona, Spain**

	Approved Budget (in US\$)	
	1998	1999
TOTAL PERSONNEL AND OPERATING COSTS	*	*

* Administrative and Operating Costs are fully covered by the Government of Spain..

APPENDIX I

RECOMMENDATIONS ON MED UNIT, MED POL AND RACs STRUCTURE

The Contracting Parties approve the following recommendations:

A. General recommendations

1. As the issues facing MAP are well defined and prioritized through the newly approved Convention and protocols, MAP-Phase II, Agenda MED 21 and the MCSD, a more holistic and well coordinated approach is needed in the work of MEDU, MED POL and RACs. Streamlining of the Secretariat work, improving its managerial process, synergy and transparency in its work, have to be enhanced in order to be able to shoulder the new responsibilities.
2. The Coordinating Unit is the main administrative body in the MAP system.
3. Ultimate responsibility for implementing the protocols lies with the Coordinating Unit of MAP. The relevant centres implement the technical aspects of the protocols.
4. However, the implementation of certain activities should be delegated from the Athens MEDU office to the RAC Centres, such as the coordination of a few CAMP projects, the coordination of biodiversity action programmes, and the representation of MAP in outside fora, keeping the overall responsibility of the Coordinator of MAP.
5. The principle of equitable geographical distribution within the Mediterranean region should be respected whenever vacant or new internationally recruited posts are to be filled.
6. As MTF funds are considered as seed money, it is recommended that MAP relation with relevant financial and development institutions and programmes be strengthened, in order to solicit additional finance, human resources and expertise. Concrete and well prepared projects should be presented to these organisations by the Coordinating Unit.
7. UNEP Headquarters (and IMO for REMPEC) should augment its support to MAP, in particular through a better utilization of the programme support cost for the financing and administration of these structures.
8. MEDU capability to manage the legal component of MAP should be strengthened.

B. Meetings of the Contracting Parties and MAP National Focal Points

1. Meetings of the Contracting Parties are held at the Ministerial level, in order to deliberate on the general policy, strategic, and general political issues relevant to MAP as a whole.
2. The meetings of the MAP National Focal Points would be mandated to thoroughly review and finalize the MAP draft programme budget and prepare a framework strategy for subsequent approval by the Meetings of the Contracting Parties.

C. Regional Activity Centres (RACs)

1. A unified approach concerning the status of RACs other than REMPEC, which has United Nations status, should be pursued, as much as possible.
2. Agreements or formal exchange of letters are to be prepared for all RACs taking into account the diversity of the administrative systems and the prevailing circumstances in the host country.
3. The Contracting Parties hosting RACs are requested to simplify the procedures for issuing entry visas, residence permits, and work permits of internationally recruited staff, as well as granting entry visas to representatives of Contracting Parties on official MAP business.
4. Project documents should be signed by UNEP and RACs covering the activities to be carried out by them on the basis of priorities decided by the Contracting Parties. Host countries of national centres should provide counterpart contribution to cover operational costs.
5. RACs should do their best to solicit additional funds for MAP activities from outside sources, in full cooperation and prior consultation with the MEDU,
6. An assessment of the activities of RACs and other MAP Programmes should be undertaken on a regular basis by MEDU, taking into consideration the cost-efficiency ratio.
7. Financial auditing of the activities of RACs financed by the MTF should be undertaken by UNEP/MEDU on a regular basis.
8. MAP National Focal Points should devote one session at the beginning of their meetings to act as the National Focal Points for each of the BP and PAP Centres.

Staff

9. The recruitment of staff paid under the MTF should be based on a vacancy announcement to be circulated by MEDU to all Contracting Parties. The appointment of the Director of a Centre is to be undertaken in consultation between the responsible authority and MEDU. In the case when a Director of a Centre is paid by MTF, a vacancy announcement shall be jointly prepared by the host country and MEDU.
10. Consultants and experts recruited by RACs in the framework of MAP shall be selected in full consultation with the MEDU. The principle of diversification of the nationalities of the recruited consultants should be observed.

APPENDIX II

STRATEGIC ACTION PROGRAMME TO ADDRESS POLLUTION FROM LAND-BASED ACTIVITIES

TABLE OF CONTENTS

	Pages
1. Introduction	1
2. Objectives	4
3. Principles and Obligations	5
4. Establishment of Priorities for Action	7
5. Analysis of targets and activities	7
6. Monitoring	34
7. Capacity Building	35
8. Public Participation	38
9. Reporting	39
10. Guidelines for the Preparation of National Action Plans	39
11. Investment Portfolio and Mobilization of Financial Resources	49
12. Gaps, Problems and Follow-up	79

1. Introduction

The riparian States of the Mediterranean Sea, *conscious* of the economic, social, health and cultural value of the marine environment of the Mediterranean Sea Area; fully aware of their responsibility to preserve and sustainably develop this common heritage for the benefit and enjoyment of present and future generations; recognizing the threat posed by pollution to the marine environment, its ecological equilibrium, resources and legitimate uses; and mindful of the special hydrographic and ecological characteristics of the Mediterranean Sea Area and its particular vulnerability to pollution, have agreed in 1975 to launch an Action Plan for the Protection and Development of the Mediterranean Basin (MAP) and, in 1976, to sign a Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona Convention).

The Contracting Parties to the Barcelona Convention, *recognizing* the danger posed to the marine environment living resources and human health by pollution from land-based sources and activities and the serious problems resulting therefrom in many coastal waters and river estuaries of the Mediterranean Sea, primarily due to the release of untreated, insufficiently treated or inadequately disposed of domestic or industrial discharges; and *desirous* to adapt Mediterranean Action Plan, Barcelona Convention and their protocols to the development of the environmental international law, to the United Nations Conference on Environment and Development (Rio de Janeiro 1992), have adopted in Barcelona in 1995 the phase II of the Action Plan for the protection of the marine environment and sustainable development of the coastal areas of the Mediterranean as well as substantial amendments to the Convention and their Protocols. Furthermore, in Syracuse in 1996 a new revised Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (LBS Protocol) was signed, which takes into account the Global Programme of Action for the protection of the marine environment against pollution from land-based activities adopted in Washington in 1995.

1.1 Basis for the preparation of the Strategic Action Programme

In accordance with the 1996 LBS Protocol, the Contracting Parties (Art.1) agreed to take all appropriate measures to prevent, abate, combat and eliminate, to the fullest possible extent, pollution of the Mediterranean Sea Area caused by discharges from rivers, coastal establishments or outfalls, or emanating from any other land-based sources and activities within their territories, giving priority to the phasing out of inputs of substances that are toxic, persistent and liable to bioaccumulate.

To this end, they agreed (Art.5) to elaborate and implement national and regional action plans and programmes, containing measures and timetables for their implementation. As a result, regional action plans and programmes have to be formulated by the Secretariat and considered and approved by the relevant technical body of the Parties within one year at the latest of the entry into force of the amendments to the LBS Protocol.

The regional Strategic Action Programme presented in this document was therefore prepared by the Secretariat as part of a GEF PDF-B Grant with the financial participation of MAP. A first draft text was submitted to a Meeting of Government-designated Experts which was held in Ischia, Italy, from 15 to 18 June 1997 (UNEP(OCA)/MED WG.130/8). The Meeting examined the first draft document and agreed on a number of amendments and corrections/additions. The Strategic Action Programme was then submitted to a second Meeting of Government-designated Experts, held in Athens from 13 to 16 October 1997 (UNEP(OCA)/MED WG.136/4), and their comments and suggestions were also incorporated by the Secretariat who then submitted the

document for adoption to the Meeting of Contracting Parties to the Barcelona Convention (Tunis, 18-21 November 1997). The present programme was adopted by the Tenth Ordinary Meeting of the Contracting Parties according to the provisions of Art.5, 6 and 7 of the 1980 LBS Protocol. The Contracting Parties agreed that, once the 1996 LBS Protocol come into force, the Strategic Action Programme would be resubmitted for adoption according to the provisions of Art.15 of the 1996 Protocol. At that stage, a review of the Strategic Programme would be made to proceed to a possible revision of target dates and activities, if necessary.

This Strategic Action Programme is based on the preliminary findings of the regionally prepared transboundary diagnostic analysis that represents a regional synthesis of actions regarding the protection of the marine environment from land-based activities. The following Table presents the perceived major problems of the Mediterranean region and their associated transboundary elements. Seven major problems have been identified from a review of the results of the work of the Mediterranean Action Plan over the last twenty years, the work of related programmes and the reviews undertaken in the context of the present activity. Five main root causes are identified as resulting in the identified problems, although the relative importance of each cause differs in relation to the individual problems. In addition two major types of action are proposed to address each of the identified problems and again the relative importance of each area of action differs according to the nature of the problem.

The table is prepared on a regional scale. It is not anticipated therefore that all problems occur in each country, nor that the relative importance of the root causes or areas for action is the same in all countries. Rather this table represents a regional overview and perspective of the main problems, their root causes and the areas of proposed action at a regional level.

** Main root causes and types of action are indicated in the descending order of significance.

Table 1.1 Perceived Major Problems and their Root Causes*

MAJOR TYPES OF PROBLEMS	TRANSBOUNDARY ELEMENTS OF MAJOR TYPES OF PROBLEMS	MAIN ROOT CAUSES**	TYPES OF ACTION**
DEGRADATION OF COASTAL AND MARINE ECOSYSTEMS	<ul style="list-style-type: none"> C Damage to transboundary ecosystems, including loss in productivity, biodiversity and stability C Reduction of regional values C Decreased quality of life C Degradation due to pollution and eutrophication C Region-wide loss of revenue 	MANAGEMENT FINANCIAL LEGAL HUMAN STAKEHOLDERS	PLANNING RESOURCES
UNSUSTAINABLE EXPLOITATION OF COASTAL AND MARINE RESOURCES	<ul style="list-style-type: none"> C Impacts on habitats and biodiversity C Impacts of physical changes on coastal and beach dynamics C Loss of existing and potential income from fishing and tourism C Conflicts between user groups 	MANAGEMENT FINANCIAL STAKEHOLDERS HUMAN LEGAL	RESOURCES PLANNING
LOSS OF HABITATS SUPPORTING LIVING RESOURCES	<ul style="list-style-type: none"> C Damage to migratory species and their habitat C Endangered biotic resources C Loss of values for development C Habitat and food web changes 	MANAGEMENT FINANCIAL STAKEHOLDERS HUMAN LEGAL	RESOURCES PLANNING
DECLINE IN BIODIVERSITY, LOSS OF ENDANGERED SPECIES AND INTRODUCTION OF NON-INDIGENOUS SPECIES	<ul style="list-style-type: none"> C Loss of regional values C Damage to endangered and endemic species of regional and global significance C Loss of genetic biodiversity 	MANAGEMENT FINANCIAL LEGAL HUMAN STAKEHOLDERS	PLANNING RESOURCES
INADEQUATE PROTECTION OF COASTAL ZONE AND MARINE ENVIRONMENT AND INCREASED HAZARDS AND RISKS	<ul style="list-style-type: none"> C Reduction of regional values C Loss or revenues C High costs of curative interventions C Decreased quality of life 	MANAGEMENT FINANCIAL LEGAL HUMAN STAKEHOLDERS	PLANNING RESOURCES
WORSENERD HUMAN RELATED CONDITIOINS	<ul style="list-style-type: none"> C Human health impacts C Costs of dealing with human migration C Reduced human and institutional capacity C Reduction of development potential C Increased poverty with transboundary impacts 	MANAGEMENT FINANCIAL LEGAL HUMAN STAKEHOLDERS	PLANNING RESOURCES
INADEQUATE IMPLEMENTATION OF EXISTING REGIONAL AND NATIONAL LEGISLATION	<ul style="list-style-type: none"> C Ineffective protection of the marine and coastal environment C Inadequate monitoring of pollution and consequently inadequate data interpretation for managerial purposes C Poor public education and awareness regarding scientific and economic values and technical options 	LEGAL MANAGEMENT FINANCIAL HUMAN STAKEHOLDERS	PLANNING RESOURCES

MAIN ROOT CAUSES	
LEGAL Inadequate legal and institutional framework	<ul style="list-style-type: none"> • Inadequate cooperation on the regional level • Inadequate legislation at the national level relevant to regional problems • Inadequate institutional framework and capacity necessary for the implementation of legislation , ICZM and EIA • Inadequate pollution compliance and trend monitoring • Ineffective coordination between various governmental sectors and local and national level
MANAGEMENT Inadequate planning and management at all levels	<ul style="list-style-type: none"> • Poorly coordinated intersectoral planning and management • Lack of integrated watershed / coastal zone management plans • Lack of application of ICZM and its tools • Inappropriate harvesting practices in fisheries • Inadequate pollution control strategies with monitoring
HUMAN Insufficient human and institutional capacity	<ul style="list-style-type: none"> • Inadequate human and institutional capacity (at national and local level) for the implementation of the legislature and ICZM with its tools] • Inadequate human and institutional capacity (at national and local level) for compliance and trend monitoring of pollution
STAKEHOLDERS Insufficient involvement of stakeholders	<ul style="list-style-type: none"> • Lack of general environmental awareness • Poor identification of stakeholders • Lack of adequate participation of stakeholders in the planning and management of environmental problems
FINANCIAL Inadequate financial mechanisms and support	<ul style="list-style-type: none"> • Lack of effective economic instruments • Lack of internalisation of environmental costs • Low monetary value assigned to environment within national economic policies
TYPES OF ACTION	
PLANNING Integrated planning and management and reduction of pollution	<ul style="list-style-type: none"> • Improvement of legal and institutional framework at regional and national level for ICZM and associated tools • Development of integrated management for river basin / coastal areas and for urban agglomerations • Improved involvement of stakeholders in environmental decision-making • Identification and elimination of pollution hot-spots • Adequate compliance and trend monitoring • Full implementation of relevant regional and national legislation
RESOURCES Resources management	<ul style="list-style-type: none"> • Full implementation of relevant regional and national legislation • Sustainable management of resources • Protection of biodiversity, endangered, endemic and migratory species, habitats and sensitive areas • Development of sustainable fisheries aquaculture and tourism

* The analysis in this table does not necessarily apply to all Contracting Parties to the Barcelona Convention.

2. Objectives

The Strategic Action Programme (SAP) aims at improving the quality of the marine environment by better shared-management of the land-based pollution. SAP also aims at facilitating the implementation by the Contracting Parties of the LBS Protocol. Therefore, it is designed to assist Parties in taking actions individually or jointly within their respective policies, priorities and resources, which will lead to the prevention, reduction, control and/or elimination of the degradation of the marine environment, as well as to its recovery from the impacts of land-based activities. Achievement of the aims of the SAP will contribute to maintaining and, where appropriate, restoring the productive capacity and biodiversity of the marine environment, ensuring the protection of human health, as well as promoting the conservation and sustainable use of marine living resources.

The specific objectives of the SAP Programme are:

- Formulation of principles, approaches, measures, timetables and priorities for action;
- Preparation of a priority list for intervention and investments ("investment portfolio");
- Analysis of expected baseline and additional actions needed to resolve each transboundary priority problem;
- Identification of the elements and preparation of guidelines for the formulation of national action plans for the protection of the marine environment from land-based activities; and
- Identification of potential roles for Non-Governmental Organizations in the implementation of the SAP.

Since the adoption of the Mediterranean Action Plan in 1975, important progress have been made by the Mediterranean countries for the protection of the environment both at the national and the regional levels. At the regional level the progress is made evident by the adoption of important amendments of the existing legal texts as well as the adoption of new legal instruments.

In view of the unequal starting point and of the different level of socio-economic development, the progress marked at the national level has not been homogeneous; however, the Mediterranean countries have all created competent institutions in charge of the protection of the environment, often at a very high political level, and have adopted legislative measures and regulations for the protection of the environment. Since 1973, the European Union countries have adopted five programmes for the protection of the environment, the last one being dated 1993, which have been the basis for a large number of provisions related to the protection of the environment.

The SAP is addressed to all Contracting Parties and proposes common objectives. However, it is evident that the implementation of the proposed activities should take into account the state of the environment of each country. The timing for targets and for activities may also be different for different countries, taking into account e.g. of the capacity to adapt and reconvert existing installations, the economic capacity and the need for development.

The 1995 Barcelona Resolution is an agreement made at ministerial level aiming at the elimination by the year 2005 of the greatest number of substances which are toxic, persistent and bioaccumulable and it was fully taken into account in the preparation of the SAP.

For the implementation of the SAP at the regional level, the MAP Coordinating Unit will make full use of the capabilities and the technical competences of its Regional Activity Centres and of other competent intergovernmental organizations.

3. Principles and Obligations

The Contracting Parties shall individually or jointly take all appropriate measures in accordance with the provisions of the Convention to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area and to protect and enhance marine environment in that Area so as to contribute towards its sustainable development.

In accordance with the provisions of the LBS Protocol, the Parties undertake to eliminate pollution deriving from land-based sources and activities, in particular to phase out inputs of the substances that are toxic, persistent and liable to bioaccumulate listed in annex I to the Protocol

In order to protect the environment and contribute to the sustainable development of the Mediterranean Sea Area, the Parties shall:

- a) *Apply the precautionary principle*, by virtue of which where there are threats of serious or irreversible damage, the lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation;
- b) *Apply the polluter pays principle*, by virtue of which the cost of pollution prevention, control and reduction measures are to be borne by the polluter, with due regard to the public interest;
- c) *Undertake environmental impact assessment* for proposed activities that are likely to cause a significant adverse impact on the marine environment and are subject to an authorization by competent national authorities;
- d) *Accord priority to integrated pollution control* as an important part of the move towards a more sustainable balance between human activity and socio-economic development, on the one hand, and the resources and regenerative capacity of nature, on the other;
- e) *Commit themselves to promote the integrated management of the coastal zones*, taking into account the protection of areas of ecological and landscape interest and the rational and sustainable use of natural resources;
- f) In implementing the Convention and the LBS Protocol the Parties shall:
 - i) *elaborate and implement, individually or jointly, as appropriate, national and regional action plans and programmes, containing measures and timetables;*
 - ii) adopt priorities and timetables taking into account the elements set out in annex I of the Protocol and periodically revise them;

- iii) take into account *the Best Available Techniques (BAT) and Best Environmental Practices (BEP)* including, where appropriate, clean production technologies, taking into account the criteria set forth in Annex IV of the Protocol;
- iv) *take preventive measures* to reduce to a minimum the risk of pollution caused by accidents;
- g) Ensure that, in compliance with the community right-to-know, their competent authorities shall *give to the public appropriate access to information* on the environmental state in the field of application of the Convention and the Protocols, on activities or measures adversely affecting or likely to affect it and on activities carried out or measures taken in accordance with the Convention and the Protocols. (article 15 of the Convention);
- h) Ensure routine and standardized reporting of toxic emissions to air, water and land (including off-site disposal) by polluting facilities - private, state, or municipal. Ensure active public dissemination by the competent authorities of the data reported bearing in mind legitimate needs for business confidentiality.

The Strategic Action Programme will be consistent with the Global Programme of Action (Washington, 1995) and with the relevant provisions of the Convention on the Law of the Sea, of the Convention on Biological Diversity, of the Convention on Climatic Change and with the legal instruments and actions plans and measures adopted by the Contracting Parties to the Barcelona Convention.

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, *States have common but differentiated responsibilities*. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

The new LBS Protocol means a change in the strategy selected for the protection of the Mediterranean environment; this new strategy is based on sustainability and its purpose is to achieve integrated prevention and control of pollution arising from land-based sources and activities, in particular through the application of clean technologies, Best Available Techniques (BAT) and Best Environmental Practice (BEP).

4. Establishment of priorities for action

The proposed priorities for action are based on the results of MED POL and the Reports on pollution "hot spots", "critical habitats" and "sensitive areas" (areas of concern) and also take in account the LBS Protocol, which in Annex 1, states "*In preparing action plans, programmes and measures, the Parties, in accordance with the Global Programme of Action, will give priority to substances that are toxic, persistent and liable to bioaccumulate, in particular persistent organic pollutants (POPs), as well as to wastewater treatment and management*".

In general, priority actions for the prevention, reduction and elimination of pollution are established taking in account four pollution-related factors:

- i) degradation of the marine environment;
- ii) perturbation of the biological diversity;
- iii) land-based origin; and
- iv) transboundary nature (causes or effects).

5. Analysis of targets and activities

An analysis of targets and activities is needed to resolve each transboundary priority problem. These targets and activities would be national or regional and would be of legal, institutional or technical nature.

Taking into account the Global Programme of Action (Washington, 1995) and the LBS Protocol, the following categories of substances have been selected as priorities. The selected categories of substances cover urban environment and industrial development.

5.1 Urban environment

Large and even medium-size cities pose similar problems and should be studied in an integrated manner. Air pollution, generation, collection and management of solid waste products, collection and disposal of domestic wastewater, supplies of drinking water: in most cities these problems are usually made worse by small and medium-size industries located within the cities and by industrial agglomerations in the outskirts.

5.1.1 Municipal sewage

Recognizing variations in local conditions, municipal sewage improperly discharged into freshwater and coastal environments may present a variety of concerns. These are associated with: (a) pathogens that may result in human health problems through exposure via bathing waters or contaminated shellfish, (b) suspended solids, (c) significant nutrient inputs, (d) biochemical oxygen demand (BOD), (e) plastics and other marine debris, (f) ecosystem population effects, (g) heavy metals and other toxic substances, e.g. hydrocarbons, where industrial sources may discharge into municipal collection systems, and (h) influx of rain waters containing polluting substances.

Environmental effects associated with domestic waste water discharges are generally local with transboundary implications in certain geographic areas. The commonality of sewage-related problems throughout coastal areas of the world is significant. Consequently, domestic waste water discharges are considered one of the most significant threats to coastal environments worldwide. In the Mediterranean region, this problem has been made worse by tourism and its seasonal nature, which makes it necessary to have treatment plants which are only used for a few months every year.

Most of the secondary treatment plants are not operated and maintained adequately due to insufficient financial resources and a lack of technical expertise. Many countries are now placing special emphasis on designing waste water treatment facilities to reuse effluents.

One of the most common and worrying environmental effects of urban wastewater discharges is the gradual destruction of habitats and, in particular, of meadows of phanerogames, with the resulting decrease in biodiversity.

Proposed targets

- *By the year 2025, to dispose all municipal waste water (sewage) in conformity with the provisions of the LBS Protocol.*
- *By the year 2005, to dispose sewage from cities and urban agglomerations exceeding 100.000 inhabitants and areas of concern in conformity with the provisions of the Protocol.*

Proposed activities at the Regional level

- By the year 2000, to update and adopt the 1986 guidelines for sewage treatment and disposal and, as appropriate, environmental quality criteria and standards.
- To develop programmes for sharing and exchanging technical information and advice regarding environmentally sound sewage treatment and facilities, including the use of treated waste water and of sewage sludge.
- To promote research programmes to identify and validate sewage treatment technologies.

Proposed activities at the National level.

- To update and adopt, over a period of two years, national regulations concerning sewage discharges into the sea and rivers, which take into account the LBS Protocol and especially its Annex II and whenever appropriate, the common measures already adopted by the Parties.
- By the year 2005, to develop National Plans and Programmes for the environmentally sound Management of Sewage, (NPS), and to this end to ensure:
 - i) By the year 2005, that the coastal cities and urban agglomerations of more than 100.000 inhabitants are connected to a sewer system and dispose all waste water in conformity with a national regulation system;

- ii) To locate coastal outfalls so as to obtain or maintain agreed environmental quality criteria and to avoid exposing shell fisheries, water intakes, and bathing areas to pathogens and to avoid the exposure of sensitive environments (such as lagoons, seagrass beds, etc.) to excess nutrient or suspended solid loads;
- iii) To promote the primary, secondary and, where appropriate and feasible, tertiary treatment of municipal sewage discharged to rivers, estuaries and the sea;
- iv) To promote and control the good operation and proper maintenance of existing facilities;
- v) To promote the reuse of the treated effluents for the conservation of water resources. To this end, infrastructural measures, treatment at source and the segregation of industrial effluents, shall be encouraged, as well as:
 - a) the beneficial reuses of sewage effluents and sludges by the appropriate design of treatment plant and processes and controls of the quality of influent waste waters in accordance with national regulations;
 - b) the environmentally sound treatment when domestic and compatible industrial effluents are treated together;
- vi) To promote the separate collection of rain waters and municipal waste waters and ensure treatment of first rain waters considered particularly polluting;
- vii) To identify the availability and sustainability of productive uses of sewage sludge, such as land-spreading, composting, etc.
- viii) To prohibit the discharge of sludges into water in the Protocol Area.

5.1.2 Urban Solid Waste

Urban solid waste can affect the pollution of the sea in a number of ways: through the release of raw waste into the sea, directly or indirectly, especially plastics, and through emissions into the atmosphere of pollutants which may be generated by the combustion of these waste products.

Proposed targets

- *By the year 2025 at latest, to base urban solid waste management on reduction at source, separate collection, recycling, composting and environmentally sound disposal.*
- *By the year 2005 at latest, to base urban solid waste management on reduction at source, separate collection, recycling, composting and environmentally sound disposal in all cities and urban agglomerations exceeding 100.000 inhabitants and areas of concern.*

Proposed activities at the Regional level

- By the year 2000 to formulate and adopt guidelines for environmentally suitable and economically feasible systems of collection, including separate collection, and disposal of urban solid waste.
- By the year 2005, to develop programmes for the reduction and recycling of urban solid waste.

Proposed activities at the National level

- By the year 2000 to develop national plans and programmes for the reduction at source and environmentally sound management of urban solid waste.
- By the year 2005 to establish environmentally suitable and economically feasible systems of collection and disposal of urban solid waste in cities and urban agglomerations of more than 100,000 inhabitants.
- To promote the reduction and recycling of urban solid waste.

5.1.3 Air Pollution

Air pollution is found in most cities in the region with populations exceeding 1 million; air concentrations of particulate and lead often exceed WHO guidelines by a multiple of two to five and annual average SO₂ levels reach more than 100 micro g/m³ in many cities near refineries, and high sulphur near fuel-oil-fired power plants and industries. Vehicles are a major source of urban air pollution. Air pollution in cities has a substantial impact on health.

Proposed targets

- *By the year 2025, the levels of air pollutants in cities shall be in conformity with the provisions of the Protocol and other internationally agreed provisions.*
- *By the year 2005, the levels of air pollutants in cities exceeding 100.000 inhabitants and in areas of concern shall be in conformity with the provisions of the Protocol and other internationally agreed provisions.*

Proposed activities at the Regional level

- By the year 2005, to formulate and adopt air quality objectives for atmospheric pollutants.

Proposed activities at the National level for mobile sources

- To promote traffic management and give priority to the use of public transport.
- To promote the use of lead-free petrol and low-level aromatic hydrocarbons petrol.
- To improve the inspection and maintenance of vehicles and the renovation of the oldest vehicles (through economic incentives).
- To pursue increased regional and domestic natural gas development in order to substitute high sulphur fuel oil with natural gas and natural gas conversion for urban proximities.
- To promote the introduction of buses using gaseous fuel or other alternative forms of energy instead of diesel oil.
- To support and encourage the participation of the public transport services in the above activities.

5.2 Industrial development

The industrial development of the Mediterranean countries varies greatly and its capacity to generate pollution and cause damage to the environment is unanimously recognized. From the thirty sectors of activity primarily considered in the Annex I of the LBS Protocol, twenty-one are industrial.

On an international scale, priority has been given to toxic¹ persistent and bioaccumulable pollutants (TPBs) for their effects on human health, biodiversity and the preservation of ecosystems and long-term and long-distance effects, and less attention is paid to other pollutants, such as toxic and non-persistent or not-bioaccumulable substances, suspended solids, biodegradable organic matter and nutrients, because their effects are much more localized and less persistent. These pollutants are generated in large quantities by industries and their discharge into the environment can cause damage to human health, ecosystems, habitats and biodiversity.

Most countries in the region have an important public industrial sector which is composed of large industries. Despite the diversity of situations and problems, the public industrial sector in general includes: Energy production; Oil refineries; Petrochemicals; ; Basic iron and steel metallurgy; Basic aluminium metallurgy; Fertilizer production; Paper and paper pulp; Cement production.

¹ Toxicity includes endocrine disrupting effects

A programme concerning the reduction and to the fullest possible extent elimination of industrial pollution should be applied by all the industrial installations but it could start with the public sector enterprises, which would set an example and encourage private companies.

Proposed targets

- *By the year 2025, point source discharges and air emissions into the Protocol Area from industrial installations to be in conformity with the provisions of the Protocol and other agreed international and national provisions..*
- *Over a period of 10 years, to reduce by 50 % discharges, emissions and losses of substances that are toxic, persistent and liable to bioaccumulate from industrial installations.*
- *Over a period of 10 years, to reduce by 50% discharges, emissions and losses of polluting substances from industrial installations in hot spots and areas of concern.*

The public industrial sector shall share these targets.

Proposed activities at the Regional level

- By the year 2005, to formulate and adopt guidelines for industrial waste water treatment and disposal.
- By the year 2010, to formulate and adopt, as appropriate, environmental quality criteria and objectives, and emission limit values for point source discharges into water or air.
- To develop programmes for sharing and exchanging technical information and advice regarding environmentally sound waste water treatment and facilities, including the use of treated waste water, sludge and waste.
- To promote research programmes to identify and validate waste water treatment technologies.
- To prepare guidelines for the application of BAT, BEP and clean technology for industries.
- To support the development and application of the Environmental Management and Audit Schema (EMAS and ISO 14000).

Proposed activities at the National level

- To make or update in as short a period as possible an inventory of point source discharges and emissions of pollutants in hot spots and areas of concern.
- To make or update in as short a period as possible an inventory of point source discharges and emissions of pollutants from the public industrial sector.

- To prepare or update and adopt, as soon as possible, national regulations concerning point source discharges of industrial waste water into the Protocol Area which takes into account the guidelines, common criteria and standards adopted by the Parties.
- To give priority to the environmental problems of small and medium-size companies, favouring the creation of associations in order to minimize waste generation and achieve a joint handling of their wastewater.
- To reduce discharges and emissions of pollutants as much as possible and, in order to do so, to promote the implementation of environmental audits and apply BEP and, if possible, BAT in industrial installations that are source of pollutants.

5.2.1 Substances that are Toxic, Persistent and liable to Bioaccumulate (TPB)

Substances that are toxic, persistent and liable to bioaccumulate include organic and inorganic substances. The former are called "Persistent Organic Pollutants" and the latter include some heavy metals (Hg, Cd and Pb) and some organometallic compounds.

a) Persistent Organic Pollutants (POPs)

Persistent organic pollutants (POPs) are a set of organic compounds that: (i) possess toxic characteristics, including effects on the function of the endocrine system, (ii) are persistent, (iii) are liable to bioaccumulate, (iv) are prone to long-range transport and deposition, and (v) can result in adverse environmental and human health effects at locations near and far from their source. POPs are typically characterized as having low water solubility and high fat solubility. Most POPs are anthropogenic in origin. Anthropogenic emissions, both point and diffuse, are associated with industrial processes, product use and applications, waste disposal, leaks and spills, and combustion of fuels and waste materials. Once dispersed, clean-up is rarely possible. Because many POPs are relatively volatile, their remobilization and long-distance redistribution through atmospheric pathways often complicate the identification of specific sources.

POPs have long environmental half-lives. Accordingly, successive releases over time result in the continued accumulation and ubiquitous presence of POPs in the global environment.

The primary transport routes into the marine and coastal environment include atmospheric deposition and surface run-off. Regional and global transport is predominately mediated by atmospheric circulation, but also occurs through sediment transport and oceanic circulation. Movements may also occur through a successive migration of short-range movements resulting from a sequence of volatilization, deposition and re-volatilization processes. Due to these transport patterns and chemical characteristics, there is growing evidence of the systematic migration of these substances to cooler latitudes.

Consistent with decision 18/32 adopted by the UNEP Governing Council in May 1995 and with the Global Programme of Action (Washington, 1995), the LBS Protocol states in Annex I:

- (i) *"In preparing action plans, programmes and measures, the Parties, in accordance with the Global Programme of Action, will give priority to substances that are toxic, persistent and liable to bioaccumulate, in particular persistent organic pollutants (POPs), as well as to wastewater treatment and management";*

- (ii) "The following categories of substances and sources of pollution will serve as guidance in the preparation of action plans, programmes and measures: 1. Organohalogen compounds and substances which may form such substances in the marine environment. Priority will be given to DDT; Aldrin, Dieldrin, Endrin; Chlordane; Heptachlor; Mirex; Toxaphene; Hexachlorobenzene; PCBs; Dioxins and Furans".

a.1. Twelve Priority POPs. The twelve substances identified by the LBS Protocol are organochlorine compounds and can be divided into three groups:

- i) Pesticides: *DDT; Aldrin, Dieldrin, Endrin; Chlordane; Heptachlor; Mirex; Toxaphene; and Hexachlorobenzene.*
- ii) Industrial chemicals: *PCBs (polychlorobiphenyles)* and
- iii) Unwanted contaminants: *Hexachlorobenzene; Dioxins and Furans.*

Pesticides. The use of the nine pesticides mentioned above is almost completely prohibited in the Mediterranean Region. *Hexachlorobenzene* (HCB) is a fungicide which was used for treating seeds and for preserving wood. It is also an unwanted contaminant of the manufacture of industrial chemical products, such as *carbon tetrachloride, trichloroethylene and pentachlorobenzene*, and it is an impurity present in several pesticides, such as *pentachlorophenol* (PCP) and others.

Industrial chemicals. PCBs or *polychlorobiphenyles* are mixtures of chlorinated hydrocarbons which have been extensively used since 1930 as dielectrics in transformers and condensers and to a lesser extent as hydraulic liquids and nonconductors. Certain PCB substitutes are also dangerous and should be assessed.

Unwanted contaminants: Hexachlorobenzene; Dioxins and Furans. *Hexachlorobenzene* is also a contaminant resulting from the manufacture of some industrial chemical products, as indicated above (see "Pesticides").

Dioxines and Furans. The terms *dioxins and furans* are used to describe two groups of environmental pollutants: *polychlorinated dibenzo-p-dioxins (PCDD)* and *polychlorinated dibenzofurans (PCDF)*. Of these 210 different substances, the real toxins are the 17 isomers with chlorine substituted in the 2,3,7,8 positions, the most toxic is the 2, 3, 7, 8-*tetrachlorodibenzo-p-dioxin (2,3,7,8 TCDD)*, the toxicity of the other 16 compounds are related with the toxicity of this substance.

Dioxins and furans have no use as such, but they can be found as contaminants in some products and can be produced in combustion processes. The sources of *dioxins and furans* can be of natural or human origin. Natural sources include forest fires, volcanic eruptions or enzymatic and photolytic reactions. Studies of sediment cores in lakes near industrial centres have shown that *dioxins and furans* were quite low until about 1920. These studies show increases in concentration of *dioxins and furans* from 1920 to 1970. Declining concentrations have been measured since that time. These trends correspond to *chlorophenol* production trends. There is no doubt today that the presence of compounds of *dioxins and furans* in the environment occurs primarily as a result of anthropogenic practices.

The most important anthropogenic sources of dioxins and furans are:

- i) Combustion installations: incineration of urban, industrial and hospital waste, combustion of residual sludges, fossil power plants;
- ii) Small combustion sources: car engines, domestic heating;
- iii) The manufacture and use of certain pesticides, especially *chlorophenoxyacids (2.4-D and 2.4.5-T)*, *chlorinated phenols and PCBs*, in which they are found as impurities;
- iv) Other processes, such as paper pulp bleaching, the metallurgy of metals, the recovery of metals, mainly copper wire and electric motors and copper and aluminium turnings;
- v) Accidents: fires involving chlorinated materials, mainly chlorophenols and PCB.

Proposed targets

- *By the year 2010, to phase out inputs of the 9 pesticides and PCBs and reduce to the fullest possible extent inputs of unwanted contaminants: hexachlorobenzene, dioxins and furans.*
- *By the year 2005, to reduce 50 % inputs of the priority 12 POPs.*
- *By the year 2005, to collect and dispose all PCB waste in a safe and environmentally sound manner.*

Proposed activities at the Regional level

- To provide Contracting Parties with technical information and advice on the nine pesticides and PCB substitutes and make appropriate recommendations.
- To develop programmes for sharing and exchanging technical information and advice regarding the environmentally sound disposal of the existing quantities of the nine pesticides and PCBs. These Programmes should consider their progressive elimination, including the decontamination of equipment and containers.
- To prepare guidelines for the application of BEP and if possible BAT by the point sources of dioxins and furans mentioned in the preceding page.

Proposed activities at the National level

- To make, over a period of two years, an inventory of quantities and uses of the nine pesticides and PCBs, as well as of the industries which manufacture or condition them.
- By the year 2000, to phase out the use of the nine pesticides, except those uses which involve the safeguarding of human life when the latter is in danger or when a risk/benefit analysis is very conclusive, according to WHO recommendations.
- By the year 2000, to prohibit the manufacture, trade and new use of PCBs and by the year 2010 all existing uses of PCBs.
- To prepare pilot programmes aimed at the safe disposal of the PCBs; these programmes should consider their progressive elimination, including the decontamination of equipment and containers.
- By the year 2000, to organize the collection and environmentally sound disposal of the existing quantities of the nine pesticides.
- To reduce the emission of *HCB, dioxins and furans* as much as possible and, in order to do so, to promote the implementation of environmental audits and apply BEP and if possible BAT to the processes which generate these compounds, such as waste-incineration or recovery of metals, mainly copper wire and electric motors.

a.2. Other POPs. The Working Group on Strategies of the Convention on Long-Range Transboundary Air Pollution is preparing a draft Protocol on POPs and noted that, with one reservation, there was general agreement on the inclusion into the protocol of the 12 substances, named here "Priority 12", plus PAHs, *hexabromobiphenyl and chlordecone*, while *short-chain chlorinated paraffins, lindane and pentachlorophenol* required further examination.

Polycyclic Aromatic Hydrocarbons (PAHs). The group PAHs contains hundreds of substances occurring naturally in oil in ppm levels. PAHs are also formed from the incomplete combustion of organic matter and this process is the main source of PAHs in air. PAHs with a molecular weight exceeding 228 are almost completely bound to particles in the air. Also in the aquatic environment PAHs are mainly bound to particles due to their low solubility in water.

In the preparation of the draft Protocol on POPs, the following definition for PAHs has been proposed: *Polycyclic Aromatic Hydrocarbons*, are organic compounds made of two or more condensed benzene rings; and the following six compounds have been proposed as reference substances : *fluoranthene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3.cd)pyrene and benzo(g,h,i)perylene*, named the six Borneff PAHs. Other proposal expand the list to 10, 12, 15, 16 or 22 PAHs compounds. In general *benzo(a)pyrene* is the most commonly used reference substance for PAHs.

The most important sources of PAHs are:

- a) Point source: Primary aluminium industry; Power generation; Iron and steel industry; Ferroalloy industry; Shipyards; Petroleum refineries; Creosote production; Production of creosote treated timber; Asphaltic plants and Coke ovens; Cable burning.
- b) Diffuse sources: Road construction; Road traffic; Use of creosote treated timber; Domestic coal and wood combustion.

Proposed targets

- *By the year 2025, to phase out to the fullest possible extent inputs of PAHs.*
- *By the year 2010, to reduce by 25 % inputs of PAHs.*

Proposed activities at the Regional level

- To prepare guidelines for the application of BEP and BAT by the point and diffuse sources of PAHs mentioned in the previous paragraph.
- By the year 2010, to formulate and adopt, as appropriate, emission values for point source discharges and emissions of PAHs.

Proposed activities at the National level

- To promote the implementation of environmental audits in the industrial installations that are sources of PAHs mentioned in the previous paragraph and located in selected hot spots.
- To reduce the emission of PAHs as much as possible and, in order to do so, to apply BEP and if possible BAT to the processes which generate these compounds.

b) Heavy metals (Hg, Cd, Pb) and Organometallic compounds

b.1. Heavy metals (Hg, Cd and Pb)

The Working Group on Strategies of the Convention on Long-Range Transboundary Air Pollution is preparing a draft Protocol on Heavy Metals and noted that there was general agreement on the inclusion into the protocol of mercury, cadmium, lead and their compounds.

Mercury. The most important industrial sources of mercury are: combustion of coal in power plants; chlor/alkali production; manufacture and disposal of batteries; waste incineration and roasting and smelting in non-ferrous metal smelters.

Cadmium. The most important industrial sources of cadmium are: zinc and lead metal processing; electroplating; the production of cadmium compounds; pigment production; the manufacture and disposal of batteries; the production of stabilizers for plastics and phosphate fertilizers.

Lead. The most important industrial sources of lead are: lead metallurgy; the manufacture and disposal of batteries; additives for petrol; enamels and ceramic glazes and glass manufacture.

Mercury, cadmium and lead reach the environment through liquid discharges and atmospheric emissions.

Proposed targets

- *By the year 2025, to phase out to the fullest possible extent discharges and emissions and losses of heavy metals (mercury, cadmium and lead).*
- *By the year 2005, to reduce by 50 % discharges, emissions and losses of heavy metals (mercury, cadmium and lead).*
- *By the year 2000, to reduce by 25 % discharges, emissions and losses of heavy metals (mercury, cadmium and lead).*

Proposed activities at the Regional level

- To prepare guidelines for the application of BAT and BEP in the industrial installations that are sources of heavy metals (mercury, cadmium and lead).
- By the year 2010, to formulate and adopt, as appropriate, environmental quality criteria and standards for point source discharges and emissions of heavy metals (mercury, cadmium and lead).

Proposed activities at the National level

- To reduce discharges and emissions of heavy metals as much as possible and, in order to do so, to promote the implementation of environmental audits and apply BEP and, if possible, BAT in the industrial installations that are sources of heavy metals, giving priority to installations located in the selected hot spots.
- To prepare National Programmes on the reduction and control of pollution by Heavy Metals.
- To adopt at the national level and apply the common measures for preventing mercury pollution adopted by the Parties in 1987 (releases into the sea, max. conc. 0.050 mg/l).
- To adopt and apply for the industries of the alkaline chloride electrolysis sector, as well as the previous standard, the maximum value of 0.5 grams of mercury in the water per tonne of chlorine production capacity installed. (brine recirculation), 5 grams of mercury in the water per tonne (lost brine technology) and, if possible, 2 g of mercury from total releases into water, air and products).
- To adopt at the national level and apply the anti-pollution common measures for cadmium and cadmium compounds adopted by the Parties in 1989 (releases into the sea, max. conc. 0.2 mg/l).

- To prepare environmental voluntary agreements to which authorities, producers and users are committed on the basis of a reduction plan.

b.2. Organometallic compounds

Organometallic compounds are compounds where one metal atom is covalently bound to at least one carbon atom. These types of substances are often used as intermediates in chemical industries. Several organometallic compounds decompose rapidly in water and air and are thus less important as environmental contaminants. However, some organometallic substances are sufficiently stable and used as pesticides or stabilizers in other chemical products.

Organomercuric compounds. These compounds are used in dyes and as pesticides. The use of these compounds has been drastically reduced in the last 20 years and the input into the environment has therefore decreased.

Organolead compounds. Two compounds; *tetramethyllead* (TML) and *tetraethyllead* (TEL), are of major interest due to the large quantities used as additives to petrol. TML and TEL that evaporate from petrol are stable in air and almost insoluble in water, the degradation product trialkyllead is soluble in water and toxic.

Organotin compounds. These compounds are formed by a tin atom bound to one, two, three or four alkyl groups; of these, only the *three-alkyltin* is of commercial importance today. *Trialkyltin* compounds (e.g. *tributyltin oxide*, *tributyltin fluoride*, *triphenyltin hydroxide*) due to their biocide properties, are used as anti-fouling agent in paints for boats and wood construction in water. They are also used as pesticide in agriculture and as disinfectants in medicine, in cooling systems in industrial installations (power plants, oil refineries) and, due to their physico-chemical properties, as a stabilizing agent for PVC. *Trialkyltin* compounds are lipophilic, very toxic and stable, and their use as antifouling paints and in cooling systems is restricted.

Proposed targets

- *By the year 2010, to phase out to the fullest possible extent discharges, emissions and losses of organomercuric compounds and reduce to the fullest possible extent those of organolead and organotin compounds.*
- *By the year 2010, to reduce by 50 % discharges, emissions and losses of organometallic compounds.*
- *To phase out by the year 2005 the use of organomercuric compounds.*

Proposed activities at the Regional level

- To prepare guidelines for BAT and BEP in industrial installations that are sources of organometallic compounds.

- By the year 2010, to formulate and adopt, as appropriate, environmental quality criteria and standards for point source discharges and emissions of organometallic compounds.

Proposed activities at the National level

- To reduce discharges and emissions of organometallic compounds as much as possible and, in order to do so, to promote the implementation of environmental audits and apply BEP and, if possible, BAT in industrial installations that are sources of organometallic compounds.
- To promote the use of lead-free petrol.
- To make an inventory of the uses and quantities of organomercuric used.
- To adopt at the national level and apply the anti-pollution common measures for the organotin compounds adopted by the contracting Parties in 1989.
- To phase out the use of organotin compounds as anti-fouling agents in cooling systems.

5.2.2 Other heavy metals

Besides mercury, cadmium and lead, other heavy metals have characteristics that can represent a danger for the marine environment; they are zinc, copper and chrome and their compounds.

Zinc. The most important industrial sources of zinc are: zinc and brass metallurgy; covering of metallic surfaces; galvanizing of steel; manufacture of viscose; and rayon and the manufacture and disposal of batteries.

Copper. The most important industrial sources of copper are: copper metallurgy; covering of metallic surfaces; electric cables; and pesticides.

Chrome. The most important industrial sources of chrome are: chrome metallurgy; covering of metals; tanneries; textile and wool dyeing; corrosion inhibitors in closed cycle cooling systems.

Proposed targets

- *To eliminate to the fullest possible extent pollution of the Mediterranean Sea caused by discharges, emissions and losses of zinc, copper and chrome.*
- *By the year 2010, to reduce discharges, emissions and losses of zinc, copper and chrome.*

Proposed activities at the Regional level

- To prepare guidelines for the application of BAT and of BEP in industrial installations which are sources of zinc, copper and chrome.

- By the year 2010, to formulate and adopt, as appropriate, environmental quality criteria and standards for point source discharges and emissions of zinc, copper and chrome.

Proposed activities at the National level

- To reduce discharges and emissions of zinc, copper and chrome as much as possible and, in order to do so, to promote the implementation of environmental audits and apply Best Environmental Practice and, if possible, Best Available Techniques in industrial installations which are sources of zinc, copper and chrome, giving priority to installations located in the selected hot spots.
- To adopt at the national level and apply the common measures to control pollution caused by zinc, copper and their compounds adopted by the Parties in 1996 (releases into the sea, max. conc. 1.0 mg/l for zinc and 0.5 mg/l for copper).

5.2.3 Organohalogen compounds

Organohalogen compounds consist of a wide group of organic substances with different levels of chlorination, and a very diverse uses, from plastics to pesticides. Some organohalogen compounds can be produced by living organisms, mainly microorganisms. However, their presence in the environment occurs primarily as a result of anthropogenic activities. The production and use of these compounds may have negative environmental effects. The most dangerous have been treated in the chapter on POPs. This chapter deals with the organohalogen compounds that can have negative environmental effects which require their reduction, control and monitoring.

The organohalogen compounds can be divided in:

a) Halogenated Aliphatic Hydrocarbons

Chlorinated solvents. Chlorinated solvents are commercially produced in large quantities; the most commonly used solvents are: *dichloromethane (methylene chloride)*; *1,1,1-trichloroethane*; *trichloroethylene*; and *tetrachloroethylene (perchloroethylene)*. European production of these four solvents was approximately 400.000 tonnes/year in 1994, and world production was around 1 million tonnes in 1992.

1,1,1-Trichloroethane has been a preferred solvent for the "cold cleaning" of components in a variety of industries. As a result of its ozone depletion potential, its use has been prohibited by the Montreal Protocol since 1996.

Trichloroethylene is very widely used as a solvent for metal surface preparation within the engineering industry and *Perchloroethylene* is the principal solvent used for dry cleaning and for degreasing metals.

1,2-dichloroethane is used in the chemical industry as an intermediary in vinylchloride production. This substance is also used in the pharmaceutical and rubber industries. *Vinylchloride* is used in the production of *polyvinylchloride (PVC)*. The total PVC market in the world is about 20 million tonnes. Emissions of *1,2 dichloroethane and vinylchloride* takes place almost exclusively into the atmosphere.

The residue obtained after polymerization of *vinylchloride* is called EDC-tar (*ethylene dichloride tar*). Volumes of about 70.000 tonnes of EDC-tar may be produced every year in north-western Europe only. EDC-tar was, until mid-seventies, dumped in the Nord Sea and other seas. It is currently used to recover solvents and other chemical components before incineration. Incomplete combustion of EDC-tar results in the formation of new more stable chlorinated substances emitted as gas.

Trichloromethane (Chloroform). Most chloroform is used for the production of *chlorofluorocarbons* (CFCs). It is also used as a solvent in the pharmaceutical and bandages industries and as an intermediate in the production of paints and pesticides. The chlorination of swimming pools and drinking water also leads to the formation of trichloromethane, which is also formed by the decomposition of 1,2 dichloromethane in the exhaust fumes of motor vehicles and by the decomposition of trichloroethene in the atmosphere. Atmospheric emissions account for the largest part of the overall emissions and the chemical industry in particular is responsible for trichloromethane emissions.

Chlorinated Paraffins (CP). Chlorinated paraffins (CPs) are commercial products of polychlorinated alkanes with carbon chain lengths of C10 to C30. CP are lipophilic substances with very low water solubility.

The most important industrial uses of chlorinated paraffins are: plasticizers of paints and coatings; plasticizers of sealing products; fluids for working on metals; flame retardants for rubber, plastic materials and textiles. The world production of CPs is estimated at 300.000 tonnes.

This class of chlorinated aliphatic compounds is of low volatility and the distribution of CP is mainly due to aquatic transport where CPs are most probably absorbed by particles and surface film. The CP more dangerous for the environment are the short-chain chlorinated paraffins, especially paraffins with a chain length of between 10 and 13, whose chlorine content is greater than 50% of their weight. CPs may contaminate the environment as such, but can also form other serious pollutants, e.g. when are processed at high temperatures.

b) Halogenated Aromatic Hydrocarbons

Chlorobenzenes. All chlorinated benzenes are used in chemical industries. *Mono-, di-, and trichlorobenzenes* was utilized as solvents and chemical intermediates in pesticides and pharmaceuticals. Large quantities of chlorinated benzenes are produced every year. *1,4 dichlorobenzene* is also used as a pesticide and air freshener, *tri and tetrachlorobenzenes* have been used as PCB replacement agents in transformers and capacitors and in heat transfer media.

Chlorobenzenes are also produced unintentionally in a number of industrial processes, e.g. in the manufacture of magnesium and in the manufacture of chlorinated solvents and pesticides. Chlorobenzenes are mainly transported in the air due to their volatility and the risk to aquatic ecosystems is therefore considered to be negligible. *Hexachlorobenzene* has been treated as a priority POP.

Polychlorinated naphthalenes (PCNs). PCNs are still produced, even though large-scale production has ceased. Commercial PCN products are mixtures of naphthalenes substituted with 1-8 chlorine atoms. PCNs are used as insulating material in capacitors, fire retardants, wood preservatives and pesticides. *Polychlorinated naphthalenes* are formed by the

combustion of materials containing organohalogen material and during the production of magnesium.

Polybrominated diphenyl ethers and polybrominated biphenyls. *Pentabrominated diphenyl ether* (PBDEs) and *Polybrominated biphenyls* (PBBs) are used exclusively as flame retardants in electronics, textiles and engineering plastics. The worldwide production of PBDEs in 1990 was estimated at 4000 tonnes and the production of *decabromobiphenylis* around 1000 tonnes.

The International Programme on Chemical Safety (IPCS) has made the following recommendations:

"Persistence in the environment and accumulation in organisms suggest that commercial PDBEs should not be used";

"Human beings and the environment should not be exposed to PBBs in view of their high persistence and bioaccumulation and potential adverse effects at very low levels after long-term exposure. Therefore, PBBs should no longer be used commercially".

c) Chlorinated Phenolic Compounds

Chlorophenolic compounds are chlorinated aromatic substances with one or several hydroxy groups, bound to aromatic nuclei. Their acidic character influences the behaviour of these compounds in the aquatic environment considerably, depending on the pH- value of the receiving water bodies. *Chlorophenols* are toxic compounds effecting primarily the energy metabolism.

Chlorophenols, and mainly *pentachlorophenol*, have been used extensively- and are still used in many countries- as pesticides (mainly fungicides and bactericides) in wood protection. The main releases of chlorinated phenols into the aquatic environment are derived from the use of *pentachlorophenol* and from discharges of bleaching effluents from pulp mills. The two dominating factors influencing the formation of chlorophenols are the amount of elemental chlorine used and the lignin content of the unbleached pulp. This process in the formation of chlorinated phenols, guaiacols and catechols. Chlorophenols may be a source of dioxins.

d) Organohalogenated Pesticides

A number of different organohalogenated compounds are used as pesticides. All these compounds have some toxic characteristics and some of them can disrupt the endocrine systems of humans and wildlife and must be used with caution; the reduction of their use must therefore be a primary target. The POPs and chlorophenols that are used as pesticides are mentioned above. The pesticides not yet mentioned and identified as more dangerous for the marine environment are the Lindane and the Chlorophenoxy acids.

The insecticide Lindane is the *gamma isomer of hexachlorocyclohexane* (HCH). The alpha and beta isomers are also present in the raw product and contribute to environmental contamination. The beta isomer is the most persistent compound.

Chlorophenoxy acids, (2,4 D and 2,4,5 T) are widely used and have caused contamination of ground water. To date they have not been detected in samples from the marine environment. The relationship between these pesticides and dioxins is a matter of concern.

Proposed targets

- *To eliminate to the fullest possible extent pollution of the Mediterranean Sea caused by discharges, emissions and losses of organohalogen compounds.*
- *By the year 2010, to reduce discharges, emissions and losses into the Mediterranean Sea of organohalogen compounds.*

Proposed activities at the Regional level

- To prepare guidelines for the application of BAT and of BEP in industrial installations which are sources of organohalogen compounds.
- By the year 2010, to formulate and adopt, as appropriate, environmental quality criteria and standards for point source discharges and emissions of organohalogen compounds.

Proposed activities at the National level

- To reduce discharges and emissions of organohalogen compounds as much as possible and, in order to do so, to promote the implementation of environmental audits and apply Best Environmental Practice and, if possible, Best Available Techniques in the industrial installations which are sources of organohalogen compounds, giving priority to installations located in the selected hot spots.
- To prepare National Programmes on the reduction and control of pollution by organohalogen compounds.
- To adopt at the national level and apply the anti-pollution common measures adopted by the Parties.
- To regulate releases of organochlorines by the paper and paper pulp industries by limiting discharges measured as AOX (adsorbable organic halogen) to 1 kg per tonne of pulp produced and by reducing it further through the promotion of alternative bleaching to molecular chlorine and the use of BAT and BEP.
- To make an inventory of the uses and quantities of chlorinated paraffins and to reduce the use of short-chain chlorinated paraffins.
- To make an inventory of the uses and quantities of pesticides.
- To reduce and control the manufacture and use of PDBEs and PBBs.
- To reduce and control the manufacture and use of certain pesticides, such as lindane, 2,4-D and 2,5-T herbicides, and tri-, tetra- and penta chlorophenols, used in the treatment of wood.
- To participate in the programmes and activities of international organizations, especially FAO on the sustainable use of pesticides and to promote integrated pest management.

- To participate in the OECD/FAO Pesticide Risk Reduction Project.
- To prepare environmental voluntary agreements to which authorities, producers and users are committed on the basis of a reduction plan.

5.2.4 Radioactive Substances

Radioactive substances have entered and/or are entering the marine environment, directly or indirectly, as a result of a variety of human activities and practices. These activities include the production of energy, reprocessing of spent fuel, military operations, nuclear testing, medical applications and other operations associated with the management and disposal of radioactive waste and the processing of natural materials by industrial processes. Other activities, such as the transport of radioactive material, pose risks of such releases. Radioactive materials can present hazards to human health and to the environment.

Proposed target

- *To eliminate to the fullest possible extent inputs of radioactive substances.*

Proposed activities at the Regional level

- To transmit to the Parties reports and other information received in accordance with the Convention and the Protocol.

Proposed activities at the National level

- To promote policies and practical measures including the setting of targets and timetables to minimize the generation of radioactive waste and provide for their safe processing, storage, conditioning, transportation and disposal.
- To adopt measures, including BAT and BEP, for the reduction and/or elimination of discharges, emissions and losses of radioactive substances to the Mediterranean Sea.
- To submit reports on: the authorizations granted, data resulting from monitoring, quantities of pollutants discharged from their territories and the action plans, programmes and measures implemented.

5.2.5 Nutrients and Suspended Solids

The effects of the enrichment of water by nutrients are enhanced productivity but these can result in changes in species diversity, excessive algal growth, dissolved oxygen reductions and associated fish kills and, it is suspected, the increased prevalence or frequency of toxic and other species algal blooms. This process is linked to the "*eutrophication*" phenomena.

Eutrophication can result from an augmentation of nutrient inputs to coastal and marine areas as a consequence of human activities. Marine eutrophication is mainly an inshore problem that affects lagoons, harbours, estuaries and coastal areas which are adjacent to river mouths of highly populated river basins and/or which receive sewage from coastal cities.

The main anthropogenic sources of nutrients are: a) Municipal sewage; b) Industrial waste water; c) Agriculture; and d) Atmospheric emissions.

- a) **Municipal Sewage** (see point 5.1.1)
- b) **Industrial waste water**

Many industries produce liquid waste with similar characteristics to domestic waste water. Their main pollutants are: Biodegradable Organic Matter, Nutrients (Nitrogen and Phosphorus), and Suspended Solids, which can be treated with similar techniques. Their pollution load may be reported to population-equivalent and measured as Biological Oxygen Demand (BOD) load.

The most important sources of these substances are:

- i) manufacture of Food and Beverages: Slaughtering, preparing and preserving meat; Manufacture of dairy products; Canning & preserving of fruit and vegetables; Canning, preserving & processing of fish, crustaceans and similar foods; Manufacture of vegetable oils and fats; Sugar factories and refineries; Distillation; Wine production; Beer manufacture;
- ii) Manufacture of Textiles: Wool processing and Cotton processing;
- iii) Tanneries and the leather finishing industry;
- iv) Paper and paper-pulp industry;
- v) Phosphatic Fertilizers industry;
- vi) Pharmaceutical industry: Basic substances (Fermentation and extraction processes);

Proposed targets

- *By the year 2025, to dispose all waste water from industrial installations which are sources of BOD, nutrients and suspended solids, in conformity with the provisions of the LBS Protocol.*
- *Over a period of 10 years, to reduce by 50 % inputs of BOD, nutrients and suspended solids from industrial installations sources of these substances.*

Proposed activities at the Regional level

- To prepare guidelines for the application of BAT and BEP in industrial installations which are sources of BOD, nutrients and suspended solids.
- By the year 2010, to formulate and adopt, as appropriate, environmental quality criteria and standards for point source discharges of BOD, nutrients and suspended solids.
- By the year 2010, to formulate and adopt guidelines for waste water treatment and waste disposal from industries which are sources of BOD, nutrients and suspended solids.

Proposed activities at the National level

- To reduce discharges of pollutants as much as possible and, in order to do so, to promote the implementation of environmental audits and apply BEP and, if possible, BAT in the industrial installations which are sources of BOD, giving priority to installations located in hot spots.
- To develop National Programmes for the environmentally sound management of waste water and solid waste from industrial installations which are sources of BOD, and to this end to ensure:
 - i) by the year 2005, that at least industrial installations which are sources of BOD, nutrients and suspended solids, located in areas of concern, dispose all waste water in conformity with national regulation system;
 - ii) To locate coastal outfalls so as to obtain or maintain agreed environmental quality criteria and to avoid the exposure of sensitive environments (such as lagoons, seagrass beds, etc.) to excess nutrient or suspended solid loads;
 - iii) To promote primary, secondary and, where appropriate and feasible, tertiary treatment of BOD waste water discharged into rivers, estuaries and the sea;
 - iv) To promote sound operation and proper maintenance of facilities.
 - v) The reduction and beneficial use of waste water or other solutions appropriate to specific sites, such as no-water and low-water solutions;
 - vi) The identification of the availability and sustainability of productive uses of waste water sludge, and other waste, such as land-spreading, composting, energetic uses, animal feed, etc.;
 - vii) To prepare environmental voluntary agreements to which authorities, producers and users are committed on the basis of a reduction plan.

c) Agriculture

The nutrient load from agriculture, mainly intensive agriculture, represents a high proportion of the total anthropogenic load of nutrients to the coastal zones.

Intensive agriculture, which encompasses high crop production or high density animal husbandry, can be a major contributor to nutrients due either to the use of large quantities of fertilizers, or the production of high amounts of solid and liquid manure by farm animals.

Intensive aquaculture can also be a source of nutrients through dispersion of food and excretions from the organisms.

Soil erosion and desertification are one of the most serious problems affecting the region and their contribution to the nutrient budget and sediment load may be important.

Proposed target

- *To reduce nutrient inputs, from agriculture and aquaculture practices into areas where these inputs are likely to cause pollution.*

Proposed activities at the Regional level

- To participate in the programmes and activities of international organizations, especially FAO, on sustainable agricultural and rural development in the Mediterranean.
- To participate in the FAO programme on the sustainable use of fertilizers and to encourage the preparation of national and regional strategies based on the controlled, appropriate and rational use of seeds, fertilizers and pesticides.
- To prepare guidelines for the application of BEP (including good agricultural practices) for the rational use of fertilizers and the reduction of losses of nutrients from agriculture.

Proposed activities at the National level

- To assess the quantities and types of fertilizers used.
- To assess the quantity of solid and liquid manure produced by farm animals.
- To promote the rational use of fertilizers and reduce the losses of nutrients by misuse of inorganic fertilizers and manure.
- To promote ecological agriculture and ecological aquaculture.
- To promote rules of good agricultural practices.
- To participate in the programmes and activities of international organizations, especially FAO, on sustainable agricultural and rural development in the Mediterranean.

- To promote the implementation of the Convention on Desertification.

d) Atmospheric Emissions

An estimate of the emissions of nitrogen (NO_x and NH₃) into the atmosphere from the territories of the Mediterranean countries is 4 million tonnes of N/yr, 50% NO_x 50 % NH₃. NO_x emissions are strongly dependent on fossil fuel combustion, (93% of the total) including 54% from road transport. 80% of the atmospheric ammonia emissions are produced by the microbial decomposition of wastes from livestock and 10% of NH₃ input is related to the application of nitric fertilizers. Deposition on the Mediterranean Sea of airborne nitrogen has been estimated at 1 million t/y, which is similar to riverine inputs.

An estimate of atmospheric deposition of phosphorus into the North-Western Mediterranean suggests that it could be about 16 kt/y, with the riverine input being 40.5 kt/y.

These important quantities of nutrients are spread on the Mediterranean Sea surface and an estimate of deposition on the Mediterranean of nitrogen and phosphorus in g/m²/y is 1.5 +-0.5 N and 0.15 +- 0.05 P. From these figures it may be concluded that Mediterranean waters are not endangered by the atmospheric deposition of nutrients.

5.2.6 Hazardous Wastes

The definition of hazardous waste is complicate. The waste products which are normally considered to be hazardous are those listed in the annex or annexes to the legal documents in question e.g. the Protocol concerning transboundary movements of dangerous waste products, signed in 1996, or the Basel Agreement on the same subject.

Hazardous wastes may affect the marine environment through direct or indirect discharges of raw waste products into the sea, or through releases into the atmosphere or into water of pollutants which may be generated in the process of disposal or treating these waste products. Special attention should be paid to the proper management and disposal of stocks of obsolete chemicals.

Proposed targets

- *By the year 2025, to dispose all hazardous wastes in a safe and environmentally sound manner and in conformity with the provisions of the LBS Protocol and other international agreed provisions.*
- *Over a period of 10 years, to reduce as far as possible by 20 % the generation of hazardous waste from industrial installations.*
- *By the year 2010, to dispose 50 % of the hazardous waste generated, in a safe and environmentally sound manner and in conformity with the provisions of the LBS Protocol and other internationally agreed provisions.*

Proposed activities the Regional level

- To prepare a Mediterranean Strategy for the Management of Hazardous Wastes. This strategy will be based on the principles of prevention, reduction and reuse, and the application of Best Available Techniques and Best Environmental Practices for disposal; the regulation of transport and the remedial actions will be taken into account.
- To formulate and adopt common anti-pollution measures for hazardous wastes.

Proposed activities at the National level

- To prepare a National Strategy for the Management of Hazardous Wastes. This strategy will be based on the principles of prevention, reduction and reuse, and the application of Best Available Techniques and Best Environmental Practices for disposal; the regulation of transport and the remedial actions will be taken into account.
- To prepare National Plans for the Management of Hazardous Wastes. These National Plans will include an evaluation of the quantities of hazardous wastes produced and the financial resources necessary for their environmentally sound collection and disposal.
- The National Plans may include National or Regional Programmes for specific wastes, National Programmes for military establishments and National programmes for the public industrial sector.
- To establish facilities for the environmentally sound disposal of hazardous wastes.
- To prepare environmental voluntary agreements to which authorities, producers and users are committed on the basis of a reduction plan.
- To ratify and apply the "Hazardous Wastes" Protocol.

a) Obsolete Chemicals

Obsolete chemicals include stocks of banned organochlorine compounds, such as Dieldrin and DDT, and stocks of chemicals which are out of date or out of use for any reason.

Proposed target

- *By the year 2005, to collect and dispose all obsolete chemicals in a safe and environmentally sound manner.*

Proposed activities at the Regional level

- To develop programmes for sharing and exchanging technical information and advice regarding the environmentally sound disposal of obsolete chemicals. These programmes should consider their progressive elimination, including the decontamination of equipment and containers.

Proposed activities at the National level.

- To intensify training programmes for the identification, handling and disposal of obsolete chemicals.
- To promote national inventories of stocks of obsolete chemicals
- To prepare pilot programmes aimed at the safe disposal of obsolete chemicals; these programmes should consider their progressive elimination, including the decontamination of equipment and containers.

b) Used lubricating oil (luboil)

The definition of used lubricating oils in the terms of the LBS Protocol, is given as *"any mineral-based lubricating oils which, through use, storage or handling, have become unfit for the purpose for which they were originally intended, in particular used oils from combustion engines and transmission systems, as well as mineral oils for machinery, turbines and hydraulic systems"*.

The most important sources of used lubricating oils are: primary metallurgies; finished metallic products; machinery; electrical materials; transport equipment; chemical products; rubber and plastic; and motor vehicles. Used lubricating oils can be divided into three categories:

- Used lubricating oils which may be reused after treatment;
- Used lubricating oils contaminated by other substances (e.g. PCB); and
- Industrial waste products contaminated by lubricating oils.

Proposed targets

- *By the year 2005, to collect and dispose 50 % of used lubricating oil in a safe and environmentally sound manner.*

Proposed activities at the Regional level

- To formulate and adopt a standard on the maximum amount of PCB an oil may contain before it is considered to be contaminated (i.e. 50 mg/k).

Proposed activities at the National level.

- By the year 2000, to make an inventory of the quantities of the three categories of lubeoil.
- To prepare and adopt national pilot programmes for the collection, recycling and disposal of used lubeoils.
- To prepare and adopt national pilot programmes for the collection, recycling and disposal of used lubeoils from the public services sector (air, road and railway transport, energy transport and distribution) and from military establishments.
- To adopt at the national level and apply the common anti-pollution measures for lubeoils adopted by the Contracting Parties in 1989.

c) Batteries

There are primary batteries and secondary or accumulator batteries. The first are designed to supply only a continuous or intermittent discharge and cannot be effectively recharged; secondary batteries can be recharged. The main types of primary batteries are: traditional zinc-carbon batteries (Leclanche batteries), alkaline batteries, mercury batteries, silver oxide batteries, zinc batteries, lithium batteries and nickel-cadmium batteries. Secondary or accumulator batteries may be of the lead-acid type, which are most commonly used in cars, or nickel-iron and nickel-cadmium alkaline batteries. Once batteries are used, they are either thrown away or collected in order to recover the metals. In both cases, harm may be done to the environment.

Proposed targets

- *By the year 2025, to dispose all used batteries in a safe and environmentally sound manner and in conformity with the provisions of the Protocol and other internationally agreed provisions.*
- *Over a period of 10 years, to reduce by 20 % the generation of used batteries.*
- *By the year 2010, to dispose 50 % of used batteries in a safe and environmentally sound manner and in conformity with the provisions of the Protocol and other agreed international provisions.*

Proposed activities at the National level.

- To promote national inventories of used batteries.
- To prepare Pilot Programmes for the collection, recovery and safe disposal of used batteries.
- To promote substitution methods and encourage the reduction of the use of batteries.

- To prepare and adopt National Pilot Programmes for the collection, recycling and disposal of used batteries from the public services sector (air, road and railway transport, energy transport and distribution) and from military establishments.

5.3 Physical alterations and destruction of habitats

The increase of populations and economic activities in coastal areas is leading to an expansion of construction and physical alterations to coastal areas and waters. The building of ports and marinas, dredging operations, sand and aggregate extraction, the building of coastal defences, the installation of pipelines and coastal outfalls, the restoration of beaches, the erosion induced by inadequate land use and other activities linked to the urban, agricultural and aquacultural expansion, are giving rise to alterations of wetlands, shore lands, beachfronts and seafloors. Important habitats are being destroyed.

The damming of river systems may result in a reduction of freshwater and sediment loads, with possible changes in estuarine conditions.

Proposed targets

- *To safeguard the ecosystem function, maintain the integrity and biological diversity of species and habitats.*
- *Where practicable, to restore marine and coastal habitats that have been adversely affected by anthropogenic activities.*

Proposed activities at the Regional level

- To formulate guidelines for the preservation of habitats and normal ecosystem functions in coastal areas, particularly in the context of integrated coastal zone management.
- To develop programmes for integrated coastal zone management.

Proposed activities at the National level

- To support programmes for integrated coastal zone management.
- To undertake studies on the potential effects on the environment or Environmental Impact Assessment according to the importance of the physical alterations and the destruction of habitats related to management projects.
- To establish a system of previous authorization by competent national authorities for works which cause physical alterations of the natural state of the coastline or the destruction of coastal habitats.

6. Monitoring

Assessment of pollution-related problems makes it possible to reduce possible uncertainties when management decisions need to clarify links between inputs, concentrations and the effects of pollutants. An environmental assessment of the Mediterranean started in 1975 in the framework of MAP through its MED POL Programme. Through the adoption of MED POL Phase III in 1996, the Programme now covers all the aspects of monitoring, including trend and compliance monitoring and the monitoring of biological effects.

In order to improve the assessment of the inputs of pollutants into the Mediterranean Sea and to ensure compliance with the conditions laid down in authorizations and regulations, the Authorities responsible should establish systems of monitoring and inspection.

According to Article 6 of the LBS Protocol *“The Parties shall provide for systems of inspection to assess compliance with authorizations and regulations”*. In addition, *“The Parties establish appropriate sanctions in case of non-compliance with the authorizations and regulations and ensure their application”*.

Proposed targets

- *By the year 2000, each Party will establish a monitoring programme of the inputs of the priority pollutants identified in this Programme and of the quality of the marine environment.*
- *By the year 2000, the Parties will be establish a permanent river water quality/quantity register.*
- *By the year 2000, the Parties will establish systems of inspection.*
- *By the year 2000, the Parties will establish a monitoring programme of discharges and emissions of the priority pollutants identified in this Programme and of the quality of the marine environment.*

Proposed activities at the Regional level

- To prepare guidelines for local air pollution monitoring programmes in cities and urban agglomerations exceeding one million inhabitants.
- To develop guidelines for river monitoring programmes.
- To promote the establishment of permanent registers of river quality and quantity accessible to all Parties for selected rivers (about fifty).
- To promote the establishment of a data bank on socio-economic indicators related to sea and river quality and pollutant fluxes associated with the Geographic Information System (GIS).
- To promote the establishment of an inventory of major point atmospheric sources following EMEP/CORINAIR guidelines.

Proposed activities at the National level

- The establishment of inspection systems to ensure compliance with the conditions laid down in the authorizations and regulations.
- The establishment of monitoring programmes to evaluate the effectiveness of actions and measures implemented under this Programme.
- The establishment and improvement of local air pollution monitoring programmes as a priority in cities and urban agglomerations exceeding one million inhabitants.
- The establishment and improvement of local and national monitoring programmes to control and assess effluents discharge and the quality of the marine environment.
- The establishment and improvement of river monitoring programmes.
- The establishment of permanent registers of river quality and quantity accessible to all Parties on selected rivers (about fifty).
- The establishment of a data bank on socio-economic indicators related to sea and river quality and pollutants fluxes associated with a Geographic Information System (GIS).
- Improve the inventory of major point atmospheric sources following EMEP/CORINAIR guidelines.

7. Capacity Building

The activities proposed aim to improve, inter alia: the scientific base, environmental policy formulation, professional human resources, institutional capacity and capability, both public and private, implementation of environmentally sound technologies, the implementation of policies for cleaner production and technical cooperation, including cooperation in the fields of technology transfer and know-how process. All these measures come under the heading of Capacity-building. As part of the above, the activities will be grouped into two categories:

- To support, promote and facilitate programmes of assistance in the area of scientific, technical and human resources;
- To support, promote and facilitate, as appropriate, the capacity to apply, develop and manage access to cleaner production technologies as well as the best available techniques (BAT) and the best environmental practice (BEP).

The activities to be implemented for each category are to be considered at both national and regional level. All the competent MAP structures will be used for their implementation.

7.1 To support, promote and facilitate programmes of assistance in the area of scientific, technical and human resources.

The primary objective is for each country, with the support of international organizations, as appropriate, to identify the state of its scientific knowledge and its research needs and priorities, in order to achieve, as soon as possible, substantial improvements in:

- i) Environmental management institutions.
- ii) The scientific base and strengthening of scientific and research capacities and capabilities in areas relevant to the environment and, in particular, to priorities established in the SAP.
- iii) Environmental policy formulation, building upon the best scientific knowledge and assessments.
- iv) The interaction between scientific groups and governmental institutions, by applying the precautionary approach, where appropriate, to decision-making.
- v) Monitoring, inspection and information systems.

In accordance with articles 9 and 10 of the LBS Protocol, the Parties shall cooperate in scientific and technological fields related to pollution from land-based sources and activities. To this end, the Parties shall formulate and implement, at the regional level, training programmes, programmes of assistance and education in the area of scientific, technical and human resources.

Proposed activities at the Regional level

- To support the establishment of networks to improve the exchange of experience among Mediterranean experts, especially in the field of the priorities established in the SAP to prevent marine degradation.
- To formulate and support programmes of cooperation for capacity-building and the development of institutions, including relevant technology and management training, human resources (scientific and technical personal) and public education. These programmes should give assistance to, inter alia, environmental impact assessment, sustainable development planning, environmental auditing and management, environmental education, etc.
- To formulate and implement in the framework of MED POL capacity-building programmes related to the assessment and control of marine pollution.
- To assist in the formulation of projects eligible to be financed by international financial donors.
- To assist and advise on policies, strategies and practices that may contribute to the implementation of the measures and targets included in the SAP.

- To prepare a general manual with guidelines on urban policies directed towards energy saving, non-polluting forms of transport, waste management, the sustainable use of water and the creation of town amenities.
- To prepare a river monitoring manual by the year 2000.
- To prepare guidelines on linking socio-economic indicators to water quality indicators through GIS to check pollution control.

7.2 To support, promote and facilitate, as appropriate, the capacity to apply, develop and manage the access of cleaner production technologies as well as the Best Available Techniques (BAT) and the Best Environmental Practice (BEP).

The Parties should promote, and encourage the private sector to promote, effective modalities for giving access to cleaner production technologies and for the application the best available techniques and the best environmental practice with a view to preventing, reducing or phasing out inputs of pollutants from selected land-based sources and activities. To this end, the Parties should, at the national level, improve their up-to-date information, experience and technical expertise.

Furthermore, there is a need for favourable access to and transfer of environmentally sound technologies through supportive measures that promote technology cooperation and the transfer of the necessary technological know-how, as well as building up economic, technical and managerial capabilities for the efficient use and further development of transferred technology. Successful long-term partnership in technology cooperation necessarily requires continuing systematic training and capacity building at all levels over an extended period of time.

Proposed activities at the Regional level

- To facilitate and promote access, in particular for countries in need of assistance, to new and innovative technologies relevant to each selected land-based source and activity, including those causing physical degradation and the destruction of habitats.
- To promote new information technologies that facilitate the transfer of knowledge within countries and between States, including, in particular, from developed countries to countries in need of assistance.
- To prepare a general manual with guidelines on implementing cleaner technologies, cleaner production and cleaner materials.
- To prepare a general manual with guidelines on introducing alternatives to priority POPs.
- The establishment of networks to improve the exchange and transfer of environmentally sound technologies among Mediterranean experts, especially in the field of the priorities established in the SPA to prevent marine degradation.

- To enhance the access to and transfer of patent-protected environmentally sound technology, in particular to developing countries.
- To promote collaborative arrangements between enterprises of developed and developing countries for the development of clean production technologies.
- To promote joint ventures between suppliers and recipients of technologies, taking into account policy priorities and objectives of developing countries.
- To assist and advise on environmental aspects of current technologies that may contribute to the implementation of the measures and targets included in the SAP.
- To assist and advise on the preparation of reports that are required for the LBS Protocol.

8. Public participation

Information and public participation are essential components of a sustainable development and environmental policy.

Proposed targets

- to provide to the general public access to the information available on the state of the environment of the Mediterranean and its evolution, and the measures taken to improve it;
- to enhance the environmental awareness of pollution, and create a common approach to the environmental problems of the Mediterranean;
- to facilitate public access to activities for the protection and management of the environment and to scientific knowledge;
- to mobilize and ensure the participation and involvement of the major actors concerned (local and provincial communities, economic and social groups, consumers, etc.).

Proposed activities at the Regional level

- to identify potential roles for Non-Governmental Organizations in the implementation of the SAP and to ensure that all relevant IGOs and NGOs have appropriate access to information concerning the SAP and its application;
- to implement coordinated information campaigns and special activities on environmental protection;
- to continue and expand publication and distribution of brochures, leaflets, posters, reports, newsletters and other information materials, as well as the use of the media in all its forms;
- to enhance and strengthen the exchange of information and experience on the environmental problems of the region, and to develop cooperation in this field.

9. Reporting

In accordance with Article 13 of the LBS Protocol "*The Parties shall submit reports every two years, to the meeting of the Contracting Parties, through the Organization, of measures taken, results achieved and if the case arises, of difficulties encountered in the application of the Protocol*"

Proposed activities at the Regional level

- a) To prepare and apply a unified reporting system on the application of the provisions of the Convention, the Protocols and the SAP.
- b) To collect information on the levels and trends of loads of pollution reaching the Mediterranean Sea.
- c) To collect information on the state of the treatment and the disposal of liquid and solid wastes in the Protocol Area and to present such information to the Contracting Parties.
- d) To publish a report on the State and Evolution of the Mediterranean Environment at regular intervals .
- e) To develop public tracking and reporting systems of pollutants, known generically as *Pollutant Release and Transfer Register (PRTRs)*, in cooperation with OECD.

10. Guidelines for the Preparation of National Action Plans

10.1 Introduction

One of the SAP Programme objectives is to provide the basic elements for the formulation of guidelines for the preparation of national action plans (NAP) to address pollution from land-based activities.

States should, in accordance with their policies, priorities and resources, develop or review National Action Plans for LBS within 5 years and take action to implement these programmes with the assistance of international cooperation, in particular for developing countries. The effective development and implementation of National Action Plans should focus on sustainable, pragmatic and integrated environmental management approaches and processes, such as integrated coastal area management, harmonized, as appropriate, with river basin management and land-use plans.

In the countries where National Environmental Action Plans (NEAPs) have been adopted, the National Action Plans for LBS must be consistent with the NEAP.

The targets and activities identified in the SAP will be implemented through National Action Plans to be drawn up by Parties. The NAPs will be crucial in identifying projects that can be funded and implemented and therefore their formulation is the first priority.

10.2 Objectives

In general, the objectives of the NAPs are those of the SAP; in addition, countries can identify some specific objectives related to particular problems.

NAP objectives are:

- a) The general objective of the NAP is, in accordance with article 5 of the LBS Protocol, *to eliminate pollution deriving from land-based sources and activities, in particular to phase out inputs of the substances that are toxic, persistent and liable to bioaccumulate listed in annex I to the Protocol.*
- b) The specific objectives of the National Plans are:
 - Formulation of principles, approaches, measures, timetables and priorities for action;
 - Preparation of a national priority list for intervention and investment ("investment portfolio");
 - Analysis of expected baseline and additional actions needed to resolve each transboundary priority problem;
 - Identification of potential roles for Non-Governmental Organizations in the implementation of the NAP.

10.3 Principles and Obligations

The principles and obligations identified in the SAP are also valid for the National Plans. As part of them, the polluter pays principle may be immediately applied to new installations and, progressively, to existing ones. However, in most existing installations it will be necessary to facilitate economic interventions in order to apply the new standards and quality objectives.

The new LBS Protocol brings a change in the strategy for the protection of the Mediterranean environment. This new strategy is based on sustainability and its purpose is to achieve the integrated prevention and control of pollution arising from land-based sources and activities, in particular through the application of Best Available Techniques and Best Environmental Practice.

10.4 National Diagnostic Analysis

The identification and assessment of problems is a necessary process which combines five elements:

- a) Identification of the nature and severity of problems.
- b) Contaminants.
- c) Physical alterations and destruction of habitats.

- d) Sources of degradation.
- e) Areas of concern.

10.5 Establishment of National Priorities for Action

The establishment of national priorities for action will take into account the results of the National Diagnostic Analysis and of the national reports on "hot spots", and "sensitive areas" and will also take in account the LBS Protocol which, in Annex 1, states "*In preparing action plans, programmes and measures, the Parties, in accordance with the Global Programme of Action, will give priority to substances that are toxic, persistent and liable to bioaccumulate, in particular persistent organic pollutants (POPs), as well as to wastewater treatment and management*".

Priorities for action should be established by assessing the five elements described above and should specifically reflect:

- a) the relative importance of impacts upon food security, public health, coastal and marine resources, the health of the ecosystem and socio-economic benefits, including cultural values; and
- b) the costs, benefits and feasibility of options for action, including the long-term cost of no action.

10.6 Institutional aspects

10.6.1 Authorization or regulation

In accordance with Article 6 of the LBS Protocol, *Point source discharges into the Protocol Area, and releases into water or air that reach and may affect the Mediterranean Area, as defined in article 3 of the Protocol, shall be strictly subject to regulation and if necessary to authorization by the competent authorities of the Parties.*

Regulations are needed for both point source discharges and releases into water or air that reach and may affect the Mediterranean Area, and authorizations are required for:

- (a) Point source discharges of liquid effluents into the Protocol Area, that is the Mediterranean Sea and the rivers of its hydrologic basin, which may affect the Mediterranean Sea (municipal sewage discharges would not be included); and

- (b) Point source discharges (emissions) into the atmosphere under the following conditions:
- i) the discharged substance is or could be transported to the Mediterranean Sea Area under prevailing meteorological conditions;
 - ii) the input of the substance into the Mediterranean Sea Area is hazardous for the environment in relation to the quantities of the same substance reaching the Area by other means.

The Protocol allows one permit to be granted for liquid discharges and another for emissions into the atmosphere. The approach of this programme, in keeping with the spirit of the Protocol, is geared towards ensuring that the industrial installations which generate liquid, gaseous and waste effluents have a single permit which covers all the types of pollution or, should this not be possible, that the different permits are coordinated in order to avoid the transfer of pollution from one environmental media to another.

The Protocol indicates that the activities listed in its Annex I will be primarily considered for the preparation of action plans, programmes and measures, and it is logical to assume that their discharges should be subject to authorizations and regulations. That is why it is of prime importance to establish criteria to decide which industrial plants and which specific urban settlements generate precise discharges which should merit a permit or regulation.

During an initial stage, the system could be applied to all urban tourist settlements with a population of more than 1000 residents and to all industrial plants selected in the Annex I to the Protocol with more than 50 employees.

Point source discharges from existing installations and from new installations should be differentiated. For the former, national regulations should be gradually adapted and, for the latter, a system of prior authorization should be used taking into account the national regulations.

Proposed targets

- *By the year 2000, all point source discharges and emissions from new installations shall have prior authorization by the competent authorities.*
- *By the year 2010, 50 % of discharges of waste water and air emissions from industrial and urban installations shall be in conformity with national and international regulations.*
- *By the year 2025, all discharges of waste water and air emissions from land-based sources and activities shall be in conformity with national and international regulations.*

Existing point source discharges and emissions

Proposed activities at the National level.

- To prepare/review and adopt if necessary, over a period of one year, National Regulations concerning point source discharges of domestic and industrial wastewater into the sea and rivers, which take into account the common guidelines, standards and criteria adopted by the Parties.
- To prepare and adopt, over a period of two years, national regulations concerning point source emissions into the air from industrial installations which take into account the guidelines, criteria and standards adopted by the Parties.
- To make an inventory, in as short a period as possible, of point source discharges and emissions in the hot spots and areas of concern.
- To support the progressive implementation of national regulations by existing industrial installations.

New point source discharges and emissions

Discharges and emissions from new establishments (industries and human establishments) should have prior authorization listing the conditions under which releases may be authorized. The authorization should be negotiated during the initial phase of the project and Best Available Techniques and Best Environmental Practice should be taken into account. If the project is likely to have significant consequences on the environment, it will be necessary to evaluate the environmental impact.

The conditions imposed should take into account national regulations or the contents of Annex II, as well as the measures already adopted by the Contracting Parties.

For foreign companies the Parties will take into account Agenda 21 Chapter 19.52 d) *"Governments, at the corresponding level and with the support of the competent international and regional organizations, should: encourage large industrial companies, including transnational and other companies, to adopt policies and to undertake to adopt standards of application which are equivalent to, or no less strict than, those which are applied in their countries of origin, in relation to the ecologically rational management of chemical products"*.

Proposed activities at the National level.

- By the year 2000, all point source discharges from new establishments shall have prior authorization by the competent authorities.
- To undertake Environmental Impact Assessment for proposed activities that are likely to cause a significant adverse impact on the marine environment and are subject to an authorization by the competent national authorities.

10.7 Analysis of targets and activities

Despite the expected diversity of problems, interests and priorities across the Mediterranean Sea, the targets and activities at national level identified in chapter 5 may be adopted by the Parties as part of their NAP. In carrying out activities, the Contracting Parties should take into account the objectives of:

- Supporting the development and application of the Environmental Management and Audit Scheme in the industrial sectors.
- Promoting water-saving and the rational use of water in industry.
- Promoting energy efficiency and the rational use of energy in industry.
- Supporting the development and application of energy-saving technologies and practices.
- Developing a policy geared to taking into account the life cycle of products and the development of cleaner products.

10.8 Monitoring and enforcement

In accordance with art.6 of the LBS Protocol *"the Parties shall provided for systems of inspection by their competent authorities to assess compliance with authorizations and regulations". In addition, "The parties establish appropriate sanctions in case of non-compliance with the authorizations and regulations and ensure their application".*

Proposed targets

- *By the year 2000, each Party will establish a monitoring programme of the inputs of the priority pollutants identified in this Programme and of the quality of the marine environment.*
- *By the year 2000, the Parties will be establish a permanent river water quality/quantity register.*
- *By the year 2000, the Parties will establish systems of inspection.*
- *By the year 2000, the Parties will establish a monitoring programme of discharges and emissions of the priority pollutants identified in this Programme and of the quality of the marine environment.*

Proposed activities at the National level

- The establishment of inspection systems to ensure compliance with the conditions laid down in authorizations and regulations.
- The establishment of monitoring programmes to evaluate the effectiveness of the actions and measures implemented under this Programme.
- The establishment and improvement of local air pollution monitoring programmes as a priority in cities and urban agglomerations exceeding one million inhabitants.

- The establishment and improvement of local and national monitoring programmes to control and assess effluent discharges and the quality of the marine environment.
- The establishment and improvement of river monitoring programmes.
- The establishment of permanent registers of river quality and quantity accessible to all Parties on selected rivers (about fifty).
- The establishment of a data bank on socio-economic indicators related to sea and river quality and pollutant fluxes associated with a Geographic Information System (GIS).
- Improve the inventory of major point atmospheric sources following EMEP/CORINAIR guidelines.

10.9 Capacity Building

The activities proposed aim to improve, inter alia: the scientific base, environmental policy formulation, professional human resources, institutional capacity and capability, both public and private, the implementation of environmentally sound technologies, the implementation of policies for cleaner production and technical cooperation, including cooperation in the fields of technology transfer and know-how process. All these measures come under the heading of Capacity-building. As part of the above, the activities will be grouped into two categories:

- To support, promote and facilitate programmes of assistance in the area of scientific, technical and human resources;
- To support, promote and facilitate, as appropriate, the capacity to apply, develop and manage the access of cleaner production technologies as well as the best available techniques (BAT) and best environmental practice (BEP);

10.9.1 To support, promote and facilitate programmes of assistance in the area of scientific, technical and human resources

The primary objective is for each country, with the support of international organizations, as appropriate, to identify the state of its scientific knowledge and its research needs and priorities, in order to achieve, as soon as possible, substantial improvements in:

- i) Environmental management institutions.
- ii) The scientific base and strengthening of scientific and research capacities and capabilities in areas relevant to environment and, in particular, to priorities established in the SAP.
- iii) Environmental policy formulation, building upon the best scientific knowledge and assessments.
- iv) The interaction between scientific groups and governmental institutions, using the precautionary approach, where appropriate, to decision-making.

- v) Monitoring, inspection and information systems.

In accordance with Articles 9 and 10 the LBS Protocol, the Parties shall cooperate in scientific and technological fields related to pollution from land-based sources and activities. To this end, the Parties shall formulate and implement, at regional level, training programmes, programmes of assistance and education in the area of scientific, technical and human resources.

Proposed activities at the National level

- To support programmes on institutional capacity building in the field of environmental matters.
- To improve access to and availability of technological and scientific information at all levels.
- To develop training programmes on Environmental Impact Assessment.
- To develop training programmes on environmental auditing and management.
- To develop training programmes on environmental education.
- To organize sufficient training and educational programmes for local administration to operate and maintain sewage treatment facilities adequately.
- To facilitate the identification of opportunities for projects contributing to sustainable development in the private sector.
- To develop training programmes on the integrated management of coastal areas.
- To develop training programmes on the management of water demand.
- To develop training programmes on eco-tourism (to promote initiatives that are compatible with the environment and the social and cultural background).
- To support training programmes, using the integrated approach, on rural development.
- To develop training programmes on effective waste reduction policies and on the environmentally sound management of urban solid waste.
- To promote training programmes on the environmentally sound treatment of municipal sewage discharged to rivers, estuaries and the sea, or other solutions appropriate to specific sites.
- To develop training programmes on river monitoring.
- To develop training programmes on air pollution monitoring.
- To develop training programmes on effluent discharges, emission monitoring and inspection.

- To promotion and develop training programmes on ecological agriculture.
- To develop training programmes on monitoring and performance indicators.

10.9.2 To support, promote and facilitate, as appropriate, the capacity to apply, develop and manage the access of cleaner production technologies as well as the Best Available Techniques (BAP) and the Best Environmental Practice (BEP)

The Parties should promote, and encourage the private sector to promote, effective modalities for the access to cleaner production technologies and for the application of the best available techniques and best environmental practice with view to preventing, reducing or phasing out inputs of pollutants from selected land-based sources and activities. To this end, the Parties should, at national level, improve their up-to-date information, experience and technical expertise.

Furthermore, there is a need for favourable access to and transfer of environmentally sound technologies through supportive measures that promote technology cooperation and that should enable transfer of necessary technological know-how as well as building up of economic, technical and managerial capabilities for the efficient use and further development of transferred technology. Successful long-term partnership in technology cooperation necessarily requires continuing systematic training and capacity building at all levels over an extended period of time.

Proposed activities at the National level

- To support training programmes for the effective access to clean production technologies.
- To stimulate the research, development and transfer of clean production technologies, often through partnerships between the scientific and technological community, industry and Governmental institutions.
- To promote the cooperative interaction with private-sector groups and non-governmental organizations to introduce cost-effective and environmentally sound practices.
- To strengthen existing national institutions to assess, develop, manage and apply new environmentally sound technologies.
- To facilitate access to sources (public or private, national or multilateral) of technical advice and assistance with respect to particular source-categories and sectors.
- To promote cleaner production techniques and practices for production processes, for products and for services through training of industry personnel.
- To support the codes of good environmental practice which cover all aspects of the activity in the product's life.

- To promote a voluntary scheme/plan for the award of ecolable to products with reduced environmental impacts.
- To prepare programmes given priority to energy efficiency and renewable sources of energy.

10.10 Public participation

Public information and public participation are an essential dimension in the policy of sustainable development and environmental protection.

Proposed targets

- *to provide to the general public access to the information available on the state of the environment of the Mediterranean and its evolution, and the measures taken to improve it;*
- *to enhance the environmental awareness of the pollution, and create a common approach to the environmental problems of the Mediterranean;*
- *to facilitate public access to activities for the protection and management of the environment and to scientific knowledge;*
- *to mobilize and ensure the participation and involvement of major actors concerned (local and provincial communities, economic and social groups, consumers, etc.).*

Proposed activities at the National level

- to increase decentralization and public participation in environmental management by:
 - i) gradually decentralizing the operational functions of environmental management to municipal and local levels;
 - ii) disclosing information on environment;

- iii) involving countries, the private sector, local NGOs and the media in decision making regarding specific environmental policies and issues through mechanisms such as public consultations and environmental audits; and
- iv) identifying the potential roles of Non-Government Organizations in the implementation of the NAP and facilitating the implementation of their activities.

10.11 Reporting

In accordance with article 13 of the LBS Protocol *“The Parties shall submit reports every two years, to the meeting of the Contracting Parties, through the Organization, of measures taken, results achieved and if the case arises, of difficulties encountered in the application of the Protocol”*

Proposed activities at the National level

- Every two years, prepare and submit, to the meeting of the Contracting Parties report on application of the LBS Protocol. Such reports shall include:
 - a) National regulations, action plans, programmes and measures implemented in application of the Protocol;
 - b) Statistical data on the authorization granted in accordance with Article 6 of the Protocol;
 - c) Data resulting from compliance monitoring;
 - d) Quantities of pollutants discharged from their territories;
 - e) Development of public tracking and reporting systems of pollutants, known generically as *Pollutant Release and Transfer Register (PRTRs)*.

11. Investment Portfolio and Mobilization of Financial Resources

11.1 Mediterranean Hot Spots and Sensitive Areas

An overall picture from the Country Reports

The catalogue of Hot Spots and Sensitive Areas shown below summarizes the information contained in the individual Country Reports. The Country Reports were prepared on the basis of common questionnaires containing a set of criteria applied to all the countries included in the Project. The methodology for the identification of the Hot Spots and some elaboration of the country-level data on the land-based pollution sources associated with the identified Hot Spots are provided in the Regional Hot Spots Report.

Based on the data extracted from the Country Reports, the following annotated catalogue is constructed showing the identified Hot Spots and Sensitive Areas together with the proposed investments and estimated costs. The countries are listed in alphabetical order.

<p>ALBANIA</p> <ul style="list-style-type: none"> - Durres - Vlora - Durres chemical factory - Vlora PVC factory 	<p><u>Proposed investments include:</u> WWTP and reconstruction of sewerage systems, sanitary landfill of mercury and toxic solid wastes, study of pollution source in (Drini) river basin and management plans and capacity building for coastal zone management and monitoring programmes for the sensitive areas</p>	<p>133.5 Mill. US\$</p>
<p>ALGERIA</p> <ul style="list-style-type: none"> - Oran Ville - Rouiba - Ghazaouet - Alger - Mostaganem - Bejaia - Annaba - Skikda 	<p><u>Proposed investments include:</u> WWTP construction, reconstruction and extensions</p>	<p>115 Mill. US\$</p>
<p>BOSNIA AND HERZEGOVINA</p> <ul style="list-style-type: none"> - Mostar - Mostar alumina factory - Neum-Klek golf - Bosansko/Grahovo (Cetina river) - Channel Mali Ston - Canyon Neretva river - Delta Neretva river 	<p><u>Proposed investment includes:</u> design of NAP, capacity building, WWTP construction, monitoring of water quality, construction of sanitary dumping sites, management plans and monitoring programmes for coastal zone and sensitive areas and management and protection of critical habitats and ecosystems and endangered species</p>	<p>250.8 Mill. US\$</p>
<p>CROATIA</p> <ul style="list-style-type: none"> - Kastella Bay - Split - Shibenik - Zadar - Pula - Rijeka Oil Refinery - Kastella Bay (Kaltenberg) - Zadar (tannery) - Rijeka - Dubrovnik - Zadar (Adria) 	<p><u>Proposed investments include:</u> WWTP construction, reconstruction and extensions, sanitary landfill, and coastal zone management plans and monitoring programmes for the sensitive areas</p>	<p>170.0 Mill. US\$</p>

CYPRUS

- Limassol (Old Port area)
- Limassol
- Vassiliko (Cement factory)
- Larnaca (Oil Refinery)

Proposed investments include:
WWTP, extension of sea outfall, installation of cement factory filters, separation of contaminated materials and incineration facility

6.6
Mill.
USD

EGYPT

- El-Manzala
- Abu-Qir Bay
- Rashied
- El-Mex Bay
- Alexandria
- Damietta

Proposed investments include:
WWTP construction and rehabilitation (El-Mazala)

NA

FRANCE

Hot Spots

- Marseille
- Toulon
- Cannes
- Freijus

Proposed investments include:
Secondary WWTP

200.0
Mill.
USD

GREECE

Hot Spots

- Thermaikos Gulf
- Inner Saronic Gulf
- Patraikos Gulf
- Pagasitikos Gulf
- Herakleon Gulf
- Elefsis Bay
- NW Saronic Gulf
- Larymna Bay
- Nea Karvali Bay

Proposed investments include:
Expansion of industrial effluent and WWTP, industrial feasibility studies, treatment plant and sea outfall (Patraikos gulf), secondary treatment plant (Inner Saronic gulf)

207.4
Mill.
US\$

<p>ITALY</p> <p><u>Hot Spots</u></p> <ul style="list-style-type: none"> - Porto Marghera - Genova - Augusta - Brindisi - Gela - La Spezia - Milazzo - Gulf of Napoli - Ravenna - Taranto - Livorno-Rosignano - Bari-Barletta - Manfredonia - Ancona-Falc. 	<p><u>Proposed investments include:</u></p> <p>> Harbour/Industrial Sector</p> <ul style="list-style-type: none"> - Revised plan for product separation harbour facility (chemical, non-chemical, oil) - Protected connection system for vessel operation - Slop collection facility - Change of coastal anti-fouling system - Industrial organic coastal landfill - Ship emissions treatment plants <p>> Municipal Sector</p> <ul style="list-style-type: none"> - Revision and rationalization of WWTP on coastal cities and on cities discharging into continental waters 	<p>1,500 Mill. US\$</p>
<p>ISRAEL</p> <ul style="list-style-type: none"> - Haifa Bay - Akko - Nahariya - Gush Dan - Ashdod - Haifa Bay Industries 	<p><u>Proposed investments include:</u></p> <p>WWTP construction and upgrading. For the complete solution of the Gush Dan hot spot, additional US\$ 90.0 m. have to be considered.</p>	<p>129.0 Mill. US\$</p>
<p>LEBANON</p> <ul style="list-style-type: none"> - Greater Beirut - Jounieh - Saida-Ghaziye - Tripoli - Batroun Selaata 	<p><u>Proposed investments include:</u></p> <p>WWTP construction, industrial wastes master plan and capacity building actions</p>	<p>405.1 Mill. US\$</p>
<p>LIBYA</p> <ul style="list-style-type: none"> - Zanzur - Tripoli - Bengazi - Zawia - Tobruk 	<p><u>Proposed investments include:</u></p> <p>Industrial effluent TP maintenance, WWTP maintenance and extension (Bengazi & Tripoli)</p>	<p>16.6 Mill. US\$</p>
<p>MALTA</p> <ul style="list-style-type: none"> - Weid Ghammieq - Cumnija - Ras il-Hobz 	<p><u>Proposed investments include:</u></p> <p>WWTP construction and extension (Weid Ghammieq)</p>	<p>48.0 Mill. US\$</p>

MONACO(See General Observations below)**MOROCCO**

- Tanger	<u>Proposed investments include:</u>	54.0
- Tetouan	Domestic and industrial WWTP construction	Mill.
- Nador	and extension (Nador)	US\$
- Al Hoceima		

SLOVENIA

- Izola	<u>Proposed investments include:</u> WWTP	113.5
- Demalaris	extension and construction of sewerage	Mill.
- Piran (submarine outfall)	systems (extension in Delamaris and Koper)	US\$
- Rizana river	and management plan for Dragonja, Drnica	
	and Rizana river basins	

SPAIN

- Barcelona	<u>Proposed Investments include:</u>	1,000
- Tarragona	WWTP construction and upgrading, Urban	Mill.
- Valencia	solid waste management, Hazardous waste	US\$
- Cartagena	management, Land reclamation	
- Algeciras Bay		

SYRIA

- Tartous	<u>Proposed investments include:</u>	197.3
- Lattakia	WWTP construction, industrial wastes	Mill.
- Banias	master plan and capacity building actions	US\$
- Jableh		

TUNISIA

- Gaber	<u>Proposed investments include:</u>	298.0
- Lake of Tunis	WWTP construction and extension,	Mill.
- Lake Bizarte	industrial WWTP construction, recycling	US\$
- Sfax South	or fluorine recovery facility &	
- Ghar El-Melh	phosphogypsum disposal site (Gabes	
	fertilizer ind.), feasibility study for	
	treatment of exhaust gas (Sfux-South	
	fertilizer ind.), construction of recirculation	
	canal (Ghar El-Melh industries)	

TURKEY

- Icel Bay	<u>Proposed investments include:</u>	774.5
(Erdemli, Silifke, Tarsus)	WWTP construction and sewerage	Mill.
- Adana city	construction and extensions	US\$
(Ceyhan)		
- Antalya city		
(Alanya, Side/Manavgat)		
- Antakya		
(Iskenderun, Dortyol,		
Kirikhan)		
- Bodrum Peninsula		
(Marmaris, Datca)		

General observations

The following observations emerge from a review of the above catalogue and draw attention to key characteristics of the proposed investments:

- On the basis of the criteria proposed by the questionnaires prepared for the identification of hot spots and sensitive areas, Monaco was not included in such lists.
- Some countries did not send information about activities and costs.
- The proposed Hot Spots are very heterogenous, sometimes a town and even a bay with all their pollution sources industrial and domestic is proposed, other a single WWTP for a town or for a industry and even a particular problem of a particular industry is proposed.
- Wastewater treatment plants (WWTP) represent the predominant remedial action proposed reflecting the perception of municipal and industrial waste water as the main land-based source of coastal pollution risk. Of the total amount of 5,693.1 Million, about 2,000 is proposed for WWTP construction, reconstruction and extensions.
- The operation and maintenance costs of WWTP is not presented.
- Only 25 Million is proposed explicitly for feasibility studies, management plans and capacity-building actions.
- Urban solid waste management and Hazardous waste management are almost totally forgotten, only 12,5 Million are proposed for these activities.
- The activities to abate the levels of atmospheric, urban and industrial pollution are rare.
- Despite widespread awareness of the importance of prevention measures to reduce pollution, it is surprising that actions to improve the application of Best Available techniques (BAT) and Best Environmental Practices (BEP) are not proposed.

11.1.1 Estimated costs from country reports

a) Hot spots:

The available cost information for Hot Spots is summarized in Table 1 below, which shows the estimated cost by country.

Table 1

**Estimated investment costs for Hot Spots (million USD)
proposed by the countries**

Country	Number of Hot Spots	Estimated costs
Albania	4	95.5
Algeria	8	115
Bosnia and Herzegovina	6	250.8
Croatia	8	164
Cyprus	5	6.6
Egypt	6	162.8
France	4	200
Greece	8	195.4
Italy	13	1,500
Israel	5	129
Lebanon	5	378.6
Libya	5	16.6
Malta	3	48
Morocco	4	54
Slovenia	4	113.5
Spain	5	1,000
Syria	4	191.3
Tunisia	9	298
Turkey	5	774.5
TOTAL	111	5,693.1 million USD

b) Sensitive areas.

The list of Sensitive Areas shown below summarizes the information contained in the individual Country Reports. Fourteen countries identified 54 Sensitive Areas and only 6 proposed activities, with a total cost of 93.6 million USD.

TABLE 2

**Estimated investment costs for Sensitive Areas (million USD)
 proposed by the countries**

Country	Number of Sensitive Areas	Estimated costs
Albania	3	35
Algeria	6	
Bosnia and Herzegovina	4	5,1
Croatia	5	6
Cyprus	1	
Egypt	1	
France	3	
Greece	2	12
Italy	7	
Lebanon	2	26.5
Malta	2	
Slovenia	2	3
Spain	3	
Syria	5	6
Tunisia	1	
Turkey	6	
TOTAL	54	93.6 million USD

11.2 Investment Portfolio Scenarios

11.2.1 "Do nothing"

Taking no action is evidently the highest-cost option from the environmental and social point of view, which should be excluded at the outset. Marine pollution from municipal and industrial wastewater, agricultural run-off, discharges from ships and the uncontrolled disposal of solid wastes is a major threat to the Mediterranean. Apart from the environmental costs, the strong economic-environmental linkages underlying the regional economy, due to the importance of environment-related sectors such as tourism, fisheries and agriculture, also imply direct economic losses in these sectors.

The report of the World Bank on Middle East and North Africa Environmental Strategy (1995) estimates the costs of poor environmental quality and natural resource management and includes: impairment of public health, agricultural and fishery productivity losses, reduction in

tourism revenues, degradation of historical sites and cultural property, degradation of ecosystems, loss of biodiversity and reduction in amenity values.

The total cost of environmental degradation and pollution are unknown. However, the estimate for the MNA region made by the World Bank and shown in the table below is between 11.5 and 14 billion USD per year or almost 3 percent of regional GDP. Although this should be viewed as a rough estimate and is likely to constitute a lower limit, given the exclusion of the other costs of environmental degradation and poor natural resource management, the figures in Table 2 are similar to the cost of environmental damage in Eastern European countries, such as Poland, and 2-3 times as much as comparable costs in OECD countries.

TABLE 3

Real Cost of Environmental Neglect (billion USD) (Source: World Bank)

IMPACTS	Cost
Productivity cost of soil erosion, salination and deforestation	1-1.5
Health impairment from lack of safe water and sanitation, excessive air particulate and SO ₂ pollution	7 (4.5 safe water) (2.5 PM & SO ₂)
Disease treatment	1-1.5
Health impairment from lead pollution	1.5-2
Loss of tourism	1-2
TOTAL	11.5-14

11.2.2 Try to do everything

At the other end of the scale, despite the evident urgency for action focused on the Hot Spots, the high investment cost, the variability of the Hot Spots in terms of source, consequence and transboundary effects, and the institutional and legal pre-requisites for the most effective use of national and international financial resources, require the definition of priorities. Trying to tackle all the Hot Spots, even over a period of time, is as likely to lead to inaction due to limited justification for equal attention to all the Hot Spots and the consequent failure to attract investment funds over and above national budget allocations. There is also the question of the need for additional data for a clearer identification of Hot Spots and the associated remedial actions. Screening is essential in order to build up a coherent framework for an outline Investment Portfolio.

The report of the World Bank on the MNA region Environmental Strategy (1995) presents a tentative order of magnitude of investment costs to promote more environmentally sustainable development for the MNA region (Table 4). A first estimate puts the total investment cost in the order of 58-78 billion USD over the next ten years, or about 1.3-1.8 percent of regional GDP if the investments are spread over a period of 10 years. This additional investment requirement is comparable to the expenditure on environmental protection of most OECD countries, which has been in the order of 1-2 percent of GDP for the last two decades.

TABLE 4
Tentative Ten Year Investment Requirements
(billion USD) (Source: World Bank)

Action	Total Investment	Expected benefits
Env. institutional capacity building (including staffing, training, public inform. /particip. and lab. equipm.	0.1-0.3	More env. sustainable policy framework
Industrial sector clean up: air pollution: Fuel subst. of high (3%) by low (1%) sulphur fuel oils, or by natural gas	4-6 4-5	DALYs ² reduced by 2 million from air PM and SO ₂ pollution
Industrial sector clean up: water pollution	8-14	Avoidance of additional unnecessary costs of supply of safe municipal and agriculture water
Industrial sector clean up: hazardous waste	3-4	Diminished health risks, including that of cancer
Full urban and rural coverage of safe water and sanitation, including 55% urban coverage of sewage treatment	19-21	DALYs reduced by 3 million
Natural resource management activities on 10 % of land potentially threatened by erosion	10-15 ³	Reduced productivity losses, watershed protection and biodiversity conser.
Full coverage of safe municipal solid waste management	4-6	Reduced health risks and cleaner urban environment
Change to unleaded gas. for 50 % of consumption	6-7	Health impacts reduced by 65 %
TOTAL	58-78	

The report to the EC DGXI on "Economic evaluation of air quality targets for sulphur dioxide, nitrogen dioxide, fine and suspended particulate matter and lead" (1997) estimates the costs for the reduction of emissions of air pollutants in EU cities at risk⁴ in million ECU (Table 5):

² Disability adjusted life years(DALYs) are a measure of the loss of healthy life due to both premature mortality and disability.

³ This estimate is extremely tentative given the lack of data.

⁴ The population of the cities at risk is: SO₂, 13 cities (2 Med.) with 17.9 million (5.6 Med.); NO₂, 22 cities (14 Med.) with 23.5 million (15.5 Med.); PM, 25 cities (4 Med.) with 16 million (1.58 Med.) and Pb, 10,000 to 30,000 people living near lead producing plants.

TABLE 5

Required emission reductions in cities at risk and associated costs (Source: E.U.)

Pollutant	Emission reduction (thousand tonnes) (percent.)	Total annual cost (million ECU)	Type of measures and specific cost. Central estimate of emission reduction
SO ₂	50/(10%)	21/(4- 48)	Reduction of process emissions. Use of low sulphur fuels
NO _x	70/(8 %)	79/(5-285)	Traffic: road pricing and introduction of LPG/CNG buses (40 MECU). Other sources: various measures (e.g.low-NO _x combustion techniques (39 MECU)
PM	15/(50%)	87-225/(50-300)	Traffic:road pricing and introduction of LPG/CNG buses (18 MECU). Application of fabric filters instead of Electrostatic Precipitators. But many other measure are applicable. (69-207 MECU)
Lead	Not quantif.	(12-40)	Various measures not separately identified

Some of the measures that have been evaluated control different pollutants (e.g. NO_x and PM) simultaneously. The cost-data presented in Table 2 did not account for this aspect.

11.3 Proposed Activities and Associated Costs

11.3.1 Hot spots

Taking into account the proposals made by the countries concerning the investments costs for the hot spots (table 1) as well as the activities proposed in the SAP, the Secretariat has prepared the list of activities and costs related to hot spots which is presented in table 6.

This list includes activities and costs for:

- a) investments proposed by the countries according to Table 1;
- b) activities and investments proposed by the Secretariat:
 - i) Pre-investment studies for each Hot Spot;

- ii) Reduction of 350,000 ton/y of BOD, nutrients and suspended solids of industrial origin;
- iii) Facilities for management of 1 million tonnes of Hazardous Wastes;

The list did not include operation and maintenance costs, amortization and interest.

11.3.2 Sensitive areas

Taking into account the proposals made by the countries concerning the investment costs for the sensitive areas (table 20) as well as the activities proposed in the SAP, the Secretariat has prepared the list of activities and associated costs for the sensitive areas which is presented in table 7.

This list include activities and costs for:

- a) the investments proposed by the countries according to table 2;
- b) the activities and the investments proposed by the Secretariat:
 - i) The formulation of action plans for the sensitive areas;
 - ii) Remedial actions and other activities not yet determined for other sensitive areas.

11.3.3 Cities

Taking into account the proposed activities and priorities defined in the SAP, the Secretariat has prepared the list of proposed activities and associated costs for the protection of the environment in Cities exceeding 100.000 inhabitants which is presented in Table 8.

This list include activities and costs for:

- i) Urban solid waste reduction, management and disposal for 34 cities exceeding 100,000 inhabitants with a total of 18 millions people and producing 5,4 millions tonnes/year of urban solid waste.
- ii) Inspection and maintenance of vehicles and renovation of old vehicles.
- iii) Measures for air pollution reduction. These measures include regulatory instruments, such as vehicle-targeted measures, automotive and fuel standards and non regulatory instruments such as subsidies (to promote the use of less polluting transport modes or cleaner vehicles), taxes, regulations and traffic management.

11.3.4 Regional Sustainable Environmental Management Programmes

The priorities suggested above are only part of the required actions; Pollution control strategies are most effective when they are planned and implemented within an integrated environmental management programme which includes action focused on the need to ensure sustainable resource use and sound management. The essential elements for sustainable environmental action should include activities targeted on:

- a) Capacity Building
- b) National Plans and Programmes
- c) Cleaner Production
- d) Monitoring and Enforcement
- e) Information and Public Participation

The linkages between wastewater projects and integrated environmental management should be an important element in the planning of strategic action for the Mediterranean environment. The following notes seek to strengthen this element and explain the inclusion of such programmes in the investment portfolio.

The quality of the environment in any part of the world reflects past and current practices in the "utilisation" of the environment by individuals, industrial and business organisations and public agencies in response to growing social and economic pressures for development. However, environmental degradation is not confined to low-income Mediterranean developing economies, which need to stimulate employment generation in order to cope with rapid urbanization and growth of uncontrolled settlements. Higher-income Mediterranean economies face equally serious degradation problems arising from income-induced increases in the use of materials, water, chemicals and technology, placing equally strong pressures on the environment. Environmental protection requires integrated policies and institutions capable of action to regulate production, distribution, consumption and disposal practices within a broader-based coastal zone strategy.

a) Capacity-building.

The capacity to plan and initiate environmental action across a wide range of activities is a gradual process based on a prior commitment to economic and social development policies built on cross-sectoral linkages and an effective networking effort across agencies and policies. Capacity building is needed to increase awareness of the economic and social value of the environmental resources likely to ensure that industrial and municipal organizations, consumers and policy-makers do not either disregard or give low priority to environmental risks.

Taking into account the proposed activities and priorities defined in the SAP, the Secretariat has prepared the list of proposed activities and associated cost for Capacity-building which is presented in Table 9. This list includes activities and costs for supporting training programmes on 13 different subjects over 10 years at a cost of 1 million USD each. From the 13 million USD, 25 % may be considered organizational costs and are considered as Regional costs.

b) National plans, programmes and regulations

Taking into account the proposed activities and priorities defined in the SAP, the Secretariat has prepared the list of proposed activities and associated cost for preparation of National Plans, Programmes and Regulations which is presented in Table 10. This list includes activities and costs for supporting the preparation by regional organizations of guidelines for sewage and industrial waste water treatment and disposal and the reuse of waste water and sludge, and also the preparation of Mediterranean Strategy for the Management of Hazardous Wastes and activities and costs at the national level for the preparation of national regulations, plans and programmes at a total cost of 3 million USD over the next two years. The estimated cost of these activities is 3 million USD over two years.

c) BAT & BEP and Cleaner Production

Taking into account the proposed activities and priorities defined in the SAP, the Secretariat has prepared the list of proposed activities and associated cost for preparation of guidelines for BAT and BEP and for activities for reduction of discharges and emissions by use of cleaner technologies which is presented in Table 11. This list includes activities and costs for supporting the preparation by regional organizations of guidelines for BAT and BEP for different pollutants. The estimated cost of these activities is 700.000 USD over two years. The estimated cost of national activities aimed at the reduction of discharges and emissions of priority pollutants is 460 million USD over 10 years.

d) Monitoring and Enforcement

Taking into account the proposed activities and priorities defined in the SAP, the Secretariat has prepared the list of proposed activities and associated cost for Monitoring and Enforcement which is presented in Table 12. This list includes activities and costs for supporting the establishment of inspection systems and monitoring programmes at the national level. The estimated cost for these activities is 32 million USD. A cost of 140,000 USD is estimated for supporting the establishment of inventories and data bank.

e) Information and Public Participation .

Taking into account the proposed activities and priorities defined in the SAP, the Secretariat has prepared the list of proposed activities and associated cost for Information and Public Participation which is presented in Table 13. This list includes activities and costs to enhance public participation and public information. The estimated cost of these activities is 2.98 million USD, including 1.3 million for the preparation of printed materials and TV spots.

TABLE 6
List of proposed activities and associated cost for HOT SPOTS,
prepared by the Secretariat

PROPOSED ACTIVITIES	COST UNIT USD	TOTAL COSTS million USD	DATE
List of 111 Hot Spots with main activities and first impact evaluation	10,000	1.19	1997/1999
Preinvestment studies for each 124 Hot Spots.	100,000	11.9	1998 / 2000
Prepare action plans for remedial actions in order to control pollution at 124 H.S.	2,000	0.248	1998 / 2000
Proposed investments by Countries		5,693.1	2001 / 2008
Industrial WWTP (S.S., org. matter and nutrients; 350.000 t/y BOD, equiv. 10,000,000 inhab.	40,000,000	400	2001 / 2008
Dispose 1 M tons of Hazardous Wastes in a safe and environmentally manner: - 20 Temporary safe storage for Hazardous Wastes - 5 physico/chemical treatment plants 5 integrated treatment plants - 20 Permanent safe storage for Hazardous Wastes	500,000 7,000,000 50,000,000 2,500,000	10 35 250 50	2001 / 2008
TOTAL		6,453	2001 / 2008

TABLE 7
List of proposed activities and associated cost for SENSITIVE AREAS
prepared by the Secretariat

PROPOSED ACTIVITIES	ASSOCIATED COSTS million USD	DATE
List of 54 sensitive areas and env. audits	0.54	
Prepare action plan for remedial actions for sensitive areas	1.08	1998/2000
Remedial actions for sensitive areas proposed by countries	93.6	1998/2008
Development of the methodology for selection of sensitive areas and for determination of the cost of protection	0.03	1998
Remedial actions for sensitive areas	100	1998/2008
TOTAL	195.25	

TABLE 8

**List of proposed activities and associated cost for Cities
 prepared by the Secretariat**

PROPOSED ACTIONS	ASSOCIATED COST million USD	DATE
Urban solid Waste reduction, management and disposal in 34 cities (18 M inb)	1,500	1998/2008
Inspection, maintenance and renovation of the oldest vehicles.(1 M vehicles)	500	1998/2008
Measures for Air pollution reduction	800	1998/2008
TOTAL	2,800	1998/2008

**TABLE 9
 List of proposed activities and cost for CAPACITY-BUILDING
 prepared by the Secretariat**

PROPOSED ACTIVITIES	ASS.COST REGIONAL	ASS. COST NATIONAL	DATE
Support programmes on institutional capacity building.	250,000	750,000	1998/2008
Develop. training programmes on EIA.	250,000	750,000	1998/2008
Develop. training programmes on environmental auditing and management.	250,000	750,000	1998/2008
Develop. training programmes on environmental education.	250,000	750,000	1998/2008
Develop. training programmes on monitoring and inspection.	250,000	750,000	1998/2008
Develop. training programmes on cleaner production techniques and practices.	250,000	750,000	1998/2008
Provision of training to local administration for operation and maintenance of WWTP.	250,000	750,000	1998/2008
Facilitation of access to sources of technical advice and assistance.	250,000	750,000	1998/2008
Develop. training programmes on river monitoring.	250,000	750,000	1998/2008
Develop. training programmes on air monitoring.	250,000	750,000	1998/2008
Training programmes on cleaner production for industrial managers.	250,000	750,000	1998/2008
Training programmes on cleaner production for public sector responsables.	250,000	750,000	1998/2008
Training and educ. programme on ICZM	250,000	750,000	1998/2008
TOTAL	3,250,000	9,750,000	1998/2008

TABLE 10

List of proposed activities and costs for the preparation of NATIONALPROGRAMMES prepared by the Secretariat

PROPOSED ACTIVITIES	ASS.COST REGIONAL	ASS.COST NATIONAL	DATE
Preparation of Guidelines for sewage treatment and disposal.	100,000		1998/1999
Prep. of Guidelines for ind. waste water treat. and disposal.	100,000		1998/1999
Prep. of Guidelines for reuse of waste water and sludge	100,000		1998/1999
Prep. of Mediterranean Strategy for Management of Haz.Waste	100,000		1998/1999
Prep. of Nat. Reg. on point source disch. of dom. and ind. w.w. into the sea and rivers.		200,000	1998/1999
Prep. of Nat. Reg. on point sources emissions into the air.		200,000	1998/1999
Prep. of Nat. Prog. for Sewage		200,000	1998/1999
Prep. of Nat. Programmes for Urban Solid Waste		200,000	1998/1999
Prep. of Nat.Programmes for Heavy Metals		200,000	1998/1999
Prep. of Nat.Programmes for Organohalogen compounds		200,000	1998/1999
Prep. of Nat.Programmes for SS, Organic matter and nutrients		200,000	1998/1999
Prep. of Nat. Plans for H. W.		200,000	1998/1999
Prep. of Pilot Progr. for PCBs.		200,000	1998/1999
Prep. of Pilot Progr. for Obsolete Chemicals		200,000	1998/1999
Prep. of Pilot Progr. for Luboils		200,000	1998/1999
Prep. of Pilot Progr. for used Batteries		200,000	1998/1999
Prep. of Pilot Project for manag. of H.W. from military establishments.		200,000	1998/1999
TOTAL	400,000	2,600,000	1998/1999

TABLE 11

**List of proposed activities and costs for BAT & BEP and CLEANER PRODUCTION
prepared by the Secretariat**

PROPOSED ACTIVITIES	ASS. COST REGIONAL million USD	ASS. COSTS NATIONAL million USD	DATE
Preparation of guidelines for BAT and BEP for main point sources of dioxins and furans and experts meeting.	0.1		1998/2000
Preparation of guidelines for BAT and BEP for main point sources of PAH and experts meeting.	0.1		1998/2000
Preparation of guidelines for BAT and BEP for main point sources of organometallic compounds and experts meeting.	0.1		1998/2000
Preparation of guidelines for BAT and BEP for power plants and experts meeting.	0.1		1998/2000
Preparation of guidelines for BAT and BEP for main point sources of organohalogens compounds and experts meeting.	0.1		1998/2000
Publication of the 10 guidelines.	0.1		1998/2000
Preparation of guidelines for BAT and BEP for main point sources of SS, organic matter and nutrients and experts meeting.	0.1		1998/2000
Reduction of discharges and emissions of T.P.B.		150	2001/2008
Reduction of the generation of Hazardous Waste.		150	2001/2008
Reduction of emission of air pollutants by power plants.		150	2001/2008
Support the development of alternative energies.		10	2001/2008
TOTAL	0.7	460	

TABLE 12
List of proposed activities and cost for MONITORING AND ENFORCEMENT
prepared by the Secretariat

PROPOSED ACTIVITIES	ASS. COSTS million USD	DATE
To support the establishment of a Inspection System to ensure compliance with national regulations.	10	1998/2000
To support the establishment of a Monitoring Programme to evaluate the actions.	10	1998/2000
To support the establishment of a monitoring programme for marine environment quality	5	
To support the establishment of air monitoring programme in 5 cities exceeding 1 M inhabitants.	5	1998/2008
To support the establishment of local monitoring programmes to control and asses effluent discharges.	2	1998/2008
To support the establishment of river monit. progr.for water flow, sediment load and pollution loads (50 rivers).	5	1998/2008
To support the establ. of Permanent Register of river data (50 rivers).	0.05	1998/2000
To support the establ. of National Data bank on socio-economic indicators of sea and river quality.	0.05	1998/2000
Elaboration of the Inventory of major air point sources.	0.02	1998/2000
Elaboration of the Inventory of point source discharges and emissions in the hot spots and areas of concern.	0.02	1998/2000
TOTAL	37.14	1998/2000

TABLE 13
List of proposed activities and cost for INFORMATION and PUBLIC PARTICIPATION
prepared by the Secretariat

PROPOSED ACTIVITIES	ASSOC. COSTS REGIONAL	ASSOC. COSTS NATIONAL	DATE
Enhance env. awareness of the population	20,000	200,000	1998/2005
Prepare printed material and TV spots	300,000	1,000,000	1998/2005
Identification of potential roles for NGO in the implementation of the SAP Programme.	50,000	200,000	1998/2005
Collect information on the levels and trends of loads of pollution reaching the Med. Sea	20,000	200,000	1998/2005
Develop PRTRs in cooperation with OCDE	20,000	200,000	1998/2005
Collect information on the measures implemented	20,000	200,000	1998/2005
Development of institutions and processes facilitating public participation in env. management.	20,000	200,000	1998/2005
Preparation of the reports on application of LBS Protocol and SAP	20,000	200,000	1998/2005
Prepare and adopt if necessary national legislation on public information	10,000	100,000	1998/2005
TOTAL	480,000	2,500,000	1998/2005

TABLE 14
ESTIMATED COSTS OF THE ACTIVITIES FROM 1998 TO 2008
 prepared by the Secretariat

	ESTIMATE COST (million USD) 1998 / 2000	ESTIMATE COST (million USD) 2001 / 2008	TOTAL
Hot Spots	1,078	5,375	6,453
Sensitive Areas	1.62	193.63	195.25
Protocol Area Cities	245	2,555	2,800
Capacity Building	2.6	10.4	13
National Programmes	3.2	8	11.2
Clean Production	0.7	460	460.7
Monitoring & Enforcement	20.14	17	37.14
Information & Public Participation	1.18	1.8	2.98
TOTAL	1,352.4	8,620.8	9,973.2

11.4 Future Needs

It is evident that accurate and more comprehensive cost data will be needed as part of the follow-up activities in the context of further analysis of priority actions including the question of cost-effectiveness and more detailed project identification, both of which are essential elements for strengthening the scope of economic analysis in the formulation and implementation of the environmental action plan for the Mediterranean.

11.4.1 Need for "Resource-consciousness"

The importance of cost information in this context does not only depend on its accuracy. These initial cost estimates are a "first-shop attempt" to apply cost considerations to this activity which includes screening of proposed actions and guidelines for implementation choices. Part of the purpose of developing an Investment Portfolio Strategy is to introduce "resource consciousness" in the Regional Strategic Environmental Action Plan. "Resource consciousness", in this context, means closer project identification, concern for cost-effective options and a capacity to raise questions on how to take decisions on options and approaches which are technically and socially appropriate to particular country situations. This point of view is central to environmental investment planning where increased investments need to be diverted from other commercial sectors on the basis criteria which include identification of cost-effective projects. Issues that require more detailed appraisal will be more sharply revealed as a result of the preparation of this Investment Portfolio Strategy.

11.4.2 Need for An Investment Strategy

Apart from data gaps, cost estimates need to be related to wider economic and environmental considerations before used for action planning purposes. The main task at this stage is the interpretation and use of the available cost data to construct elements for the integration of the proposed remedial environmental action in an action-oriented investment strategy for future investment decisions. The development of an investment strategy involves various levels of analysis, each requiring increasingly more and better data according to the degree of detail needed. So far, cost estimates indicate an approximate set of financial requirements, totalized to give estimated investment requirements. Raw cost information needs to be analysed in relation to the impacts of the present pollution risks and the "value" of the expected benefits of the proposed investments in terms of the future reduction of these impacts on resources, such as human health, aquatic life, economic and social welfare, recreational activities, other beneficial uses and the quality of drinking water. This approach is instrumental in the effective mobilization and use of financial resources for a particular action plan.

11.5 Use of the Investment Portfolio

An investment portfolio is a framework for guiding investment choices and decisions, usually within changing environmental and socio-economic conditions. It is a process that leads to a demonstration of the economic implications of environmental actions, rather than a final statement for a single purpose. This investment portfolio should be used as a guide to develop deeper environmental-economic analysis in the light of funding and justification requirements at the regional and national levels. The elements outlined in this investment portfolio are intended as guidelines for future work.

Raw cost information is insufficient to support investment decisions. Costs need to be related to wider economic and environmental considerations before being used for planning purposes. The interpretation and use of estimated costs required construction of an investment strategy and options for future investment decisions. This document shows how cost data should be analysed in relation to pollution impacts and the expected benefits of proposed investments, to reduce impacts on resources such as human health, aquatic life, economic and social welfare, recreational activities, other beneficial uses and the quality of drinking water. This approach should be used to make cost information meaningful for effective resource mobilization and planning.

Investment planning has many levels of analysis and data requirements. The framework used in this document outlines possible approaches and suggests guidelines that are adaptable to specific contexts. Follow-up work will be needed in support of the implementation of priority actions. It provides the context for further analysis for sharper project identification and evaluation based on the parameters which have to be taken into account.

It shows how cost, impact, benefit and funding issues can be brought together to facilitate the development of locally relevant and nationally specific investment portfolios. It demonstrates how benefits are derived from the reduction or avoidance of pollution impacts on resources of social, economic and environmental value. This perception allows further work looking at the environmental impacts as they relate to valuable resources such as Human Health, Aquatic Life, Economy and Welfare, Recreation, Other Beneficial Uses and Quality of Drinking Water rather than mixing and generalising environmental information rendering difficult the identification of benefits from actions to address pollution risks.

The investment portfolio framework developed in this document should help improve the approach to environmental investment and the justification for increasing financial resources for

the environment. It is important to remember that environmental resources are often used (and misused) outside a market context and therefore their value is under-rated. The total benefits from their conservation through better use practices should be taken into account (and when possible qualitative) in justifying the viability of environmental actions. This broader definition of benefits to include the conservation of resource for their existence (or non-use value) is one of the key elements to be used for the development of detailed project proposals put up for donor or national budget support.

In the follow up work in response to specific evaluation and investment planning needs, it is useful to focus not only on the availability of fund, or "can we afford to pay the cost of environmental action plans" but primarily on "whether it is worth paying the cost" relative to the expected benefits. This will create the need to show the total value of benefits which is typically many times greater than financial costs.

The cost/benefit approach is particularly appropriate in the context of environmental actions due to the diverse, long-term and social nature of benefits which are known to exceed by far the costs. In addition, a cost/benefit approach is more effective in mobilising funding sources for environmental actions because it focuses on the justification of environmental investment programmes which is central to the effort to attract funds from donors committed to sustainable environmental management.

Primarily, the importance of an investment portfolio lies in incorporating investment planning and economic analysis in environmental action plans. The added value of this integration is to support resource mobilisation and direction of local, national, regional and international opinion to needs for environmental action and cooperation. Funding requirements and investment options are best discussed in the light of scenarios showing to the decision-makers, NGOs and international institutions the urgency for actions in risk areas and the respective cost/benefit positions. Integrated environmental planning approaches, incorporating economic and financial concerns within the planning process, serves, among other things, to strengthen institutional capacities and to build up a common framework for communication on goals, objectives, constraints and visions essential for gathering official and popular support behind environmental proposals.

11.6 Mobilization of financial resources

The mobilization of resources is essential for the development and implementation of this Programme. However, it is important to clearly state that most of the resources should be national and that it is the polluters, the consumers, the users and the Governments which should provide the resources necessary for the application of the Programme, knowing that the benefits obtained could be greater than the costs involved.

Effective international cooperation is important for a successful and cost-effective SAP. International cooperation serves a central role in enhancing capacity-building, technology transfer and cooperation, and financial support. Moreover, effective implementation of the Programme requires efficient support from appropriate international agencies. Furthermore, international cooperation is required to ensure regular review of the implementation of the Programme and its further development and adjustment.

It will be necessary to look for external financial resources and to develop new innovative financial schemes taking into account that national financial resources are limited. To this end, there are two types of mobilization of resources:

- Mobilization of national financial resources;
- Mobilization of external financial resources and mechanism as well as other alternatives.

Financing needs fall into three categories:

- Funds for technical activities including studies; demonstration and pilot projects; planning, including operational planning; training, institutional strengthening; data collection and monitoring; programme design and implementation; and project identification, preparation, and feasibility studies.
- Funds for capital investment in facilities to reduce and control pollution and improve management of sectors.
- Funds for project implementation, including training and institutional strengthening and the recurrent cost of monitoring, operation and maintenance.

11.6.1 National financial resources

Proposed activities at National level

- To gradually change prices for the water uses in line with their economic costs to encourage more efficient water use, and to mobilize the funds needed for operation, maintenance and new investment.
- To establish and apply certain fees for the supply of municipal or industrial water according to the volumes consumed. These fees should gradually cover the costs of collection, treatment and distribution.
- To establish and apply a tax for the treatment of wastewater which gradually covers the costs of treatment and disposal. This tax should be applied to the users of domestic or industrial water.
- To establish a fee for the discharge of wastewater which complies with the regulations adopted for its discharge into public channels, rivers and the sea. This fee should take into account the volume of water discharged and its quality, and its ultimate aim should be to help maintain and monitor the quality of the receiving water.
- To establish a annual tax applied to the vehicles for their harmful emissions into the atmosphere and use of carburants.

In accordance with "polluter pay" principle:

- a) the users should, where appropriate, pay for the costs of collection and disposal of urban solid waste.
- b) to establish, where appropriate, an industrial waste management fee at rates that reflect the cost of providing the service and ensure that those who generate the wastes pay the full cost of disposal in an environmentally safe way.
- c) to establish a tax for air emissions from industrial installations. This tax would be higher in the case of industrial installations located in the "hot spots" and areas of concern.
- d) the producers of certain goods (paper, packaging, pneumatic,) should take responsibility for those goods once used or for the wastes that those goods are going to generate. These goods should be recovered (recycling, regeneration, reusing). The principal aim is that these used goods can be re-placed on the market.
- To prepare environmental voluntary agreements between authorities, producers and users of hazardous waste and substances that are toxic, persistent and liable to bioaccumulate, for the reduction of pollution.
- Both public and private sector should set up a fund from which advances to support markets of recycling goods.
- To introduce economic and financial incentives to encourage the use of less pollution goods. For example, encourage the use of unleaded petrol.
- To introduce economic and financial incentives to encourage the use of cleaner production techniques.
- To introduce pollution fees and fines to reduce the environmentally harmful impacts of certain activities. Pollution fees and fines also can be used as a source of funds for environmental activities.

Efforts to mobilise local and national resources for environmental protection through user fees or pollution charges are expected to yield results very gradually. National or local loans is not a major factor in the short term because national or local capital markets and banks have not been developed to support environmental improvements and services. National or local private investment is constrained by historical barriers to private ownership, a limited national banking and financial sector, and inexperience of potential investors with the types of activities proposed in the SAP.

11.6.2 External financial resources

The external financial resources serve a central role in order to support and complement the efforts of the Parties for the successful implementation of the SAP. Their use must be well planned and properly coordinated.

Details are given below about some of the financial resources and instruments for implementation of the SAP. Three criteria are taken into account: available financing sources, type of financial institutions and geographical scope. The principal sources of external financial resources are:

1. Grant and concessionary assistance from the GEF and the UNDP.
2. Loans from multilateral and regional banks.
3. Financial instruments from the European Union.
4. Multilateral Programmes: The Mediterranean Environmental Assistance Programme (METAP).
5. Bilateral agreements.
6. Alternative funding sources.

Grant and concessionary assistance from the GEF and the UNDP.

The Global Environmental Facility (GEF)

GEF has a special role to play in providing new and additional grant and concessional funding to meet the agreed incremental costs of measures to achieve agreed global environmental benefits in the following focal areas: climate change; biological diversity; international waters; ozone layer depletion. It is a cooperative venture among national governments, the World Bank, UNDP and UNEP. The GEF also supports international environmental management and the transfer of environmentally sound technologies.

Funds provided through the GEF offer countries the opportunity to demonstrate how development projects can integrate environmental concerns. A project usually must not be economically viable without support from the facility. Most GEF funding will be for investment projects. Other types of projects include technical assistance, pre-investment and feasibility studies, scientific research and training.

Moreover, UNDP, UNEP and the World Bank play an important role in the implementation of GEF-financed activities within their respective sphere of competence and in facilitating cooperation in GEF-financed activities by multilateral development banks, United Nations agencies and programs, other international institutions, national institutions, local communities, etc.

United Nations Development Programme (UNDP).

Environment and natural resource management were selected by UNDP's Governing Council as one of the six areas of concentration of UNDP's fifth cycle program (1992-1996).

A number of technical assistance initiatives have already been launched at both country and regional levels. UNDP's support ranges from preparation of sound strategies for environmental protection and implementation of national environmental plans to the design of programs for environmental education.

Other regional initiatives included the establishment of collaborative networks in the area of water management including supplementary irrigation and water management at the farm level, range management, and sand dune stabilization.

UNDP will play the primary role in ensuring the development and management of capacity building programs and technical assistance projects.

Loans from Multilateral and Regional Banks.

Loans may come from multilateral banks, mainly the European Investment Bank; the European Bank for Reconstruction and Development (EBRD); and the World Bank. The World Bank and regional banks can provide loan finance for larger projects and technical assistance directly, and for smaller projects through financial intermediaries in the borrowing country, normally at rates lower than those obtainable on the commercial market.

The amounts available for environmental projects depend on their country and sectoral priorities and the recipient's borrowing capacity. These banks are guided by the priorities and resource allocations of governments. Environmental investment by these banks depends on the priorities of the borrowing country, its level of borrowing or indebtedness and the anticipated economic conditions it can support, the balance in investment activities among priority sectors, the quality of the proposed investment, and the borrower or project sponsor. When assessing project financing proposals, these banks focus in particular on the sponsor or borrower, and on their capacity and planning for repayment of the loan. The funds of the international financial banks are lent at or near market terms, for frequently longer maturity and with longer grace periods than those available from other sources. Their use is contingent upon the willingness of the borrower to agree to service the loan and the willingness of the state to provide guarantees for repayment that some of these institutions require. The EBRD is also able to lend to viable projects on a limited resource basis. In general, loans from international banks cover foreign currency costs only while local currency funds must be found from other sources. The possibility of blending loan and grant money in a single project should always be examined. Maximising the involvement of the private sector takes the burden off central government and effectively implements the polluter pays principle.

The World Bank

The World Bank can provide loan to assist countries to set priorities, improve environmental assessment, capacity building, and implement programs for sound environmental stewardship. It can also provide advice and help countries for the preparation and implementation of National Action Programmes, and can ensure that Bank lending incorporates environmental concerns at every stage of preparation, and design and implementation of projects that supports. The Bank participates in the Global Environmental Facility activities.

The World Bank environmental activities involve policy dialogue, lending, technical assistance, research and aid coordination. The World Bank lending to the Mediterranean region is increasing for country-level institution building and for the management of critical natural resources such as forests, watersheds, freshwater, wild-life and soils.

The European Investment Bank.

The protection of the environment is among the key priorities of the EIB's lending policy; it thus acts in line with the objectives of the European Community, which puts an increasing

emphasis on safeguarding the environment and achieving sustainable growth. The EIB's interest in environmental protection is pursued through three complementary components:

a) for each investment scheme, the Bank takes into account the overall environmental impact.

b) the EIB provides funds for projects aimed exclusively or primarily at environmental protection, including pollution control equipment in industrial plants, or projects aimed at improving urban environment; and

c) in appropriate cases, the Bank supports feasibility studies and technical assistance schemes in order to help identify priority investment needs and design cost-efficient solutions.

The main aim of the EIB is to support projects that produce one or a number of the following benefits: improvements in drinking water supplies and waste water treatment; the introduction of environmentally sound techniques to process solid, in some cases toxic, waste; a reduction of atmospheric pollution, especially from power station and industrial plant; the promotion of environmentally sound industrial processes and products; and the protection of the environment and the improvement of the quality of life in urban/coastal areas.

Financial Instruments from European Union.

Various sources of funds from the European Union can be mobilized in favour of environmental projects in the Mediterranean region. They consist of grant programs funded by the EC and loans from the EIB. Bilateral aids have not been taken into considerations and neither have the specific characteristics of the countries of the Mediterranean belonging to the group of Eastern countries (Albania) which benefit from other instruments such as PHARE.

The LIFE Programme: The revised regulation (EC n^o. 1404, OJ L 181/1 of 20/07/96) adopted in 1996 contains some adjustments in view of pursuing the action between 1 January 96 and 31 December 1999.

From this second phase onwards, the LIFE programme has been subdivided into three parts according to fields of action: LIFE-Environment (applicable in the Union territory); LIFE-Nature (also applicable in the Union territory); LIFE-Third countries (applicable to Mediterranean countries).

LIFE-ENVIRONMENT: Eligible actions for the 1996-1999 period are the following: innovatory or pilot actions to promote sustainable development in industrial activities; pilot and promotional actions as well as technical assistance to local communities to foster integration of the environment into land planning and promote sustainable development; preparatory actions for the implementation of the Community environmental policy and legislation. 46% of the total LIFE budget are earmarked for actions within the framework of LIFE-Environment.

LIFE-NATURE: The aim of LIFE-Nature is nature conservation in the widest sense by supporting actions "required to preserve and restore natural habitats and populations of animal and plant species in a favourable state of conservation. The LIFE-Nature indicative budget for the 1996-1999 period amounts to 27 MECU.

In principle, all the actions proposed under LIFE-nature must be carried out within the EU. However, there is an exceptional possibility of including actions in third countries if the project concerns a habitat or a species of Community interest. The amount of the action outside the EU does not exceed 10% of the planned budget.

LIFE-THIRD COUNTRIES: The aim of LIFE-Third countries is to implement technical assistance actions and pilot actions in the Mediterranean third countries⁵ in the following areas: technical assistance for the establishment of the necessary administrative structures in the field of the environment and for the development of environment policies and actions programmes; the conservation or restoration of important habitats hosting endangered flora and fauna; pilot actions to promote sustainable development.

Among the criteria applicable to actions in third countries, it should be mentioned that these actions must contribute to an approach fostering sustainable development at international, national or regional levels and bring solutions to well-spread environmental problems in the region or field concerned. It must be noted that proposals should have an immediate practical application (which leaves out studies, research projects, etc.). The budget allocated to LIFE-Third countries for the 1996-1999 periods amounts to 36 MECU.

Decentralized cooperation: A budget line for "decentralized cooperation" (B7-5077) was created in 1992, targeting all developing countries without distinction. This line has been provided with a very small budget: 6 MECU in 1996 and 5 MECU for 1997. The regional distribution of funds is very irregular, the Mediterranean being the area benefitting less from Community funds.

Environmental Actions in Developing Countries: The budget line "Ecology in developing countries" (line- B7-5040) was created in 1982 to fund actions in the Mediterranean countries, as well as Africa, Latin America or Asia, always in relation to geographical priorities. In the Mediterranean area, priority has been given to pollution control. Three types of action can apply for support: those aiming at the integration of environmental aspects into cooperation, including training actions and environmental impact assessments; those with the objective of helping partners of developing countries to improve the institutional capacities required for the formulation and implementation of projects; those making it possible to test and promote innovatory approaches and techniques through pilot projects dealing with urban environment or coastal ecosystem. The allocated budget in 1996 amounted to 15 MECU.

MEDA Financial Instrument: The main objective of the MEDA instrument is "to contribute to common interest initiatives in the three areas of the Euro-Mediterranean Partnership: to strengthen political stability and democracy, to set up a Euro-Mediterranean free trade area, to develop economic and social cooperation, and to take into account the human and cultural dimension" (Council Regulation (EC) n°. 1488/96 of 23 July 1996).

The guidelines for the indicative programmes under MEDA are, among others: the complementarity between bilateral and regional programmes; the "multiannual" nature of programming, which allows for middle-term intervention; the need to make indicative programmes focus on a limited number of priority sectors; the need for regional cooperation to deal with the three domains of the Euro-Mediterranean Partnership, etc. The MEDA budget line

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In the Mediterranean area, eligible third countries are the following: Albania, Algeria, Bosnia-Herzegovina, Cyprus, West Bank and Gaza, Croatia, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Syria, Tunisia and Turkey.

was provided with 4,125 MECU for the 1995-1999 period, of which 100 MECU are reserved to the reduction of interests from loans granted by the European Investment Bank in the field of environment.

Multilateral Programmes: The Mediterranean Environmental Technical Assistance Programme (METAP).

The aim of the METAP Programme is to identify actions, through feasibility studies, which could be supported by investments from the World Bank, the EIB, the UE, national governments, etc. The final objective is to curb environmental degradation in the Mediterranean area.

METAP entered in a new phase in 1996. The joint definition of indicators for sustainable development in the Mediterranean area will be one of the priorities of METAP III, which plans to assist Mediterranean countries in the implementation of a reliable framework of specific indicators and related reference points that can be used to monitor and assess the impact of policies, programmes and projects, including METAP activities, the priorities of which are capacity building and integrated water management as well as holding pollution in check and preventing it at "critical spots".

METAP III plans to continue its work upstream by providing funds and technical support to medium-term activities leading to the setting-up of policies and a series of investments to restore the environment. Until now, METAP has already granted some 25 MECU in support of 121 technical assistance activities. These activities have helped in turn to identify and set up investments for the environment amounting to more than 1,5 billion ECU. Under METAP III, cost estimates for identified activities amount to some 91 MECU, which constitutes a significant increase.

Bilateral agreements

Bilateral agreements have proved to be an important mechanism of cooperation between developed and developing countries. The European Union and many States members have signed bilateral cooperation agreements with Mediterranean countries. Environment and sustainable development are an important part of these agreements. Other OCDE countries have also signed bilateral agreements with Mediterranean countries with the same interests for environmental matters.

Alternative funding sources

Export credit agencies: These are a source of shorter-term project financing, especially for specialized equipment.

Debt-for equity swaps and eco-conversion programme: Creditors agree to convert the debts owed to them into local funds to be applied for environmentally beneficial expenditures.

Foundation grants: Private or public foundations may use their resources to support innovative approaches to environmental management or the development of human resources.

Private funding: Voluntary contributions through non-governmental channel or NGOs.

Investments from private sector institutions: Loans may be taken out from private sector institutions in the same way as from equivalent national institutions.

11.6.3 Clearing-house mechanism

As a means of assisting and mobilizing technical scientific and human resources, including access to cleaner production technology as well as the application of the best available techniques and the best environmental practice, States should establish a collaborative network (a clearing-house mechanism) to enhance the transfer and cooperation among developing countries and between developed and developing countries.

It would be a mechanism for responding to requests on scientific, technical and human resources from national Governments, organizations, institutions, firms and/or individuals. The clearing-house would consist of three basic elements:

- a) A data directory, with components organized by source-category, cross-referenced to economic sectors, containing information on current sources of information, practical experience and technical expertise;
- b) information-delivery mechanisms to allow decision makers to have ready access to the data directory and obtain direct contact with the sources of information, practical experience and technical expertise identified therein (including the organizations, institutions, firms and/or individuals most able to provide relevant advice and assistance);
- c) Infrastructure- the institutional process for developing, organizing and maintaining the directory and delivery mechanisms.

This mechanism should be established on existing subregional, regional or national research centres which are already linked with national institutions and NGOs.

Proposed targets

- By the year (2000), to develop a clearing-house mechanism.

Proposed activities

- The functions of the clearing-house will include:
- To collect, treat and disseminate information as well as data on available technologies, their sources, their environmental risks and the broad terms under which they may be acquired.
- To disseminate information on concrete cases where environmentally sound technologies were successfully developed and implemented.
- To advise, assist and suggest guidelines, for instance for policy integration, capacity building, technology transfer, etc.
- To facilitate other services, as for instance source of advice, training, technologies and technology assessment.
- To allow decision makers to have ready access to the data and obtain direct contact with the sources of information, practical experience and technical

expertise identified therein (including the organizations, institutions, firms and/or individuals)

The Clearing-house, in the implementation of their functions, should be coordinate, and not replicate, the work of the organizations such as the World Bank, the United Nations Development Programme (UNDP), including the UNEP International Cleaner Production Information Clearing House (UNEP/ICPIC), the International Atomic Energy Agency (IAEA), the International Maritime Organization (IMO), etc. They should in addition make full use of the work of other regional networks as well as intergovernmental and non-governmental organizations and private sector.

12. Gaps, Problems and Follow-up

The present Strategic Action Programme was prepared by the Secretariat in response to specific requirements of the 1996 LBS Protocol (Art.5 and Art. 15). The PDF-B grant of GEF assigned to MAP for its preparation was an opportunity given to the Contracting Parties to fulfil an important provision of the Protocol at low cost for MAP and in a very short time. In addition, the preparation of the Transboundary Diagnostic Analysis and the Report on Pollution Hot Spots, required by GEF as a basis for the formulation of the Strategic Action Programme, provided MAP in a record time with a collation of a very large number of information on the main pollution problems of the region and on the possible remedial actions and their costs. In general terms, it is possible to say that the process initiated through the GEF-sponsored activities is providing the Contracting Parties with a solid basis for planning and eventually implementing the long-term pollution control strategy needed for the implementation of the LBS Protocol.

The Strategic Action Programme proposes a very comprehensive and ambitious exercise for the Contracting Parties. Although the programme provides a large number of information, at the end of this first phase of the GEF-sponsored project the following gaps and problems can be easily identified:

(a) Project and programme specification

- to look much more closely and critically at the catalogue of Hot Spots and Sensitive Areas presented by countries. The proposed interventions should be clearly specified and the technological options involved critically examined;
- to focus on the socio-economic context of the Hot Spot areas and identify the population, employment, social and cultural structure of the areas for better analysis and sharper understanding of the impacts and benefits underlying the proposed interventions;
- to examine critically the basic economic policies applied in selected groups of countries with important regional Hot Spots to catalogue economic measures (subsidies, loan priorities, taxes, etc.) encouraging directly or indirectly pollution as part of export, import substitution, rural development policies and specific assistance to particular development projects (energy, agriculture, transport, tourism). Economic policy biases and distortions are often serious background sources of pollution which make it difficult to identify if "point sources" are separated from the rest of the economic policy context;

- to review opportunities for the mobilisation of private sector resources and the scope for the use of incentives, measures to influence private sector decisions and behaviour related to the environment.
- (b) Appropriate cost/benefit studies
- to develop a practical framework for cost/benefits study of the main priority projects and programmes based on regionally relevant evaluation techniques, issues and data, and utilising to the maximum the few existing case studies;
 - to prepare more accurate cost estimates for priority projects to be used for pre-investment analysis needed by potential donors;
 - to identify more sharply and measure the main benefits to accrue from the implementation of the key priority projects, including proposals for overcoming data and specific measurement problems;
 - to prepare a more detailed investment portfolio focusing on the cluster of priority projects and programmes aiming at the incorporation of elements concerning the social justification for donor support, the beneficiary population, funding and investment recovery mechanisms and national participation capabilities.
- (c) Financing capabilities at the regional and national level
- to collect information on regional multi-lateral and bi-lateral funding sources and national expenditure on environmental programmes for the purpose of identifying "national" and "incremental" investment needs;
 - to analyse "affordability" and cost-recovery issues in relation to the diversity of national economic and social conditions which may entail specific country-based social impacts caused by the implementation of capital-intensive environmental facilities and the consequent introduction of user charges.

As a result of the above, it is evident that if on the one hand the proposed Strategic Action Programme shows the way to follow for an efficient long-term solution to land-based pollution, on the other hand it represents only the starting point of the process. In order to achieve the final goal of the Programme, it is therefore necessary to plan a step-by-step approach which should keep into account the available resources and opportunities at the national and international levels.

At the present moment, the provision of the 1997 GEF grant, which includes possible follow-up activities, is a concrete opportunity given to Contracting Parties to initiate the process indicated by the Strategic Action Programme. The GEF initiative foresees first the adoption of the Strategic Action Programme by the Contracting Parties. After that, a full GEF project could be prepared in conjunction with the convening of a Meeting of potential donors to examine the support required by developing countries for the implementation of the Programme. The project could cover the next phase of implementation of the activities which could include a sum between 4 and 6 ml US\$ on the assumption that a percentage of that sum (a minimum of 20-25 per cent) could be covered by additional donors (national and international including MAP). This sum, which alone cannot obviously solve the existing problems identified through the GEF initiative, should be utilized in the most effective way, i.e. to prepare the ground for the concrete implementation of the interventions proposed.

As a result, the full GEF project, aiming at funding the costs of addressing transboundary issues and problems and achieving regional benefits, could include firstly the selection of a number of priority hot spots of transboundary significance for detailed feasibility study and cost analysis and, secondly, a number of regional level activities of the Strategic Action Programme designed to leverage both national support to the execution of the Programme and donor support for specific activities in developing countries. The GEF project should also include an incremental cost analysis including an estimate of the existing baseline, and indication of the additional funding that would be applied by national Governments to address issues and problems identified as priority.

APPENDIX III

RESOLUTION

"REGIONAL STRATEGY ON PREVENTION OF POLLUTION OF THE MARINE ENVIRONMENT BY SHIPS"

The Contracting Parties, at their meeting in Tunis, 18-21 November 1997;

Considering the importance to associate prevention of pollution of the marine environment by ships to preparedness and response to such pollution in order to contribute to sustainable development in the Mediterranean Sea and to implement Agenda 21;

Taking into account the relevant part of the "Action Plan for the protection of the marine environment and the sustainable development of the coastal areas of the Mediterranean" (MAP Phase II) adopted by the Conference of Plenipotentiaries held in Barcelona on 10 June 1995;

Acknowledging the conclusions of their extraordinary meeting held in Montpellier 1 to 4 July 1996 which decided to ask the meeting of Focal Points of REMPEC to study the question of regional co-operation in the field of prevention of pollution of the marine environment by ships;

Having noted the conclusions of the meeting of the Focal Points held in Malta 22 to 26 October 1996;

- I. **Adopt** the regional strategy on prevention of the pollution of the marine environment by ships, here appended;
- II. **Decide** that, as a consequence, the Protocol on emergency is to be amended in order to introduce in it the provisions necessary to implement this strategy and desire to adopt the corresponding amendments on the occasion of their 1999 meeting;
- III. **Decide** that, pending the adoption and entry into force of these amendments, REMPEC be charged to implement this strategy as regards co-operation between Mediterranean States, supplementing in this way its action concerning preparedness for and response to accidental marine pollution;
- IV. **Decide that** the Annex to Resolution 7 regarding the objectives and functions of REMPEC is to be amended.

REGIONAL STRATEGY ON PREVENTION OF POLLUTION OF THE MARINE ENVIRONMENT BY SHIPS

More than 90% of world trade is shipped by sea. About 30% of the world's maritime trade either transits through the Mediterranean sea directly or leaves from or is directed to the 300 ports scattered along the basin's coastline. There are 58 major oil loading and unloading ports in the Mediterranean. Commercial shipping in the Mediterranean is so dense as to present high risk patterns likely to provoke massive pollution by oil or other hazardous substances in particular because of the insufficient or inadequate enforcement of international standards. Operational discharges from ships (oily wastes, noxious liquid substances, sewage and garbage) also constitute an important source of pollution.

The social and economic development of Mediterranean coastal countries is in particular linked to maritime safety and the quality of the marine environment. Consequently, in a sustainable development prospective, **it is more important to prevent accidents than to combat the pollution of the marine environment which might be a consequence of them.**

In the light of these considerations, **MAP Phase II** had decided to conduct a number of activities with the assistance of the Regional Centre and with the co-operation of the International Maritime Organization.

Accordingly, regional cooperation should be developed towards an effective implementation of International Conventions and in particular those adopted under the aegis of IMO, without adding normative provisions to those in these Conventions.

This regional co-operation shall take into account the regional framework for co-operation established by the Euro-Mediterranean Partnership as well as, within this context, the mutual commitments binding the European Union to its Mediterranean Partners.

This strategy aims at:

- a) strengthening national capacity
 - i) by improving the capacity of administrations (in charge of maritime transport and environment) to develop and implement prevention policies by:
 - training programmes
 - supplying information and expertise including access to technology
 - conducting pilot programmes

- ii) by developing equipment and infrastructure resources by:
 - conducting technical and pre-investment studies
 - conducting pilot projects
- b) developing regional cooperation
 - i) by organising dialogue with a view to conducting co-ordinated activities at all levels: national, regional and global (within IMO)
 - ii) by implementing programmes that require concerted actions and measures at the regional level
 - iii) by conducting studies on subjects of regional interest.

This strategy will concentrate mainly on the following priority activities:

- a) monitoring the effective implementation of the relevant IMO Conventions by the Flag State, Port State and Coastal State;
- b) developing port reception facilities;
- c) safety of navigation;
- d) surveillance of discharges and prosecution of offenders;
- e) emergency towing.

APPENDIX IV

General principles and definition of the geographical coverage for the preparation of inventories of the elements of biological diversity in the Mediterranean region and the criteria for the preparation of national inventories of natural sites of conservation interest

The present criteria are established for the purposes of the preparation of inventories of the elements of biological diversity in the Mediterranean region, pursuant to section 2.1 of the Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean (MAP Phase II) and Articles 3 and 15 of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean.

I. GENERAL PRINCIPLES

1. The main objective of the preparation of the inventories will be the collection of data useful for the conservation of Mediterranean biological diversity.
2. To conveniently meet conservation purposes, the inventories shall:
 - be regularly updated;
 - contain for each listed element the information useful for its conservation and monitoring.
3. With a view to fostering the exchange of information concerning biological diversity in the Mediterranean, and in order to ensure comparability and regional integration, national inventories shall:
 - be accessible for comparative evaluation and regional integration in accordance with procedures that are appropriate to the requirements of conservation;
 - be compiled according to commonly agreed standard formats;
 - be available in English or French.

II. GEOGRAPHICAL COVERAGE OF THE INVENTORIES

1. The geographical coverage of the inventories shall include the marine and terrestrial coastal areas, including wetlands, of the Mediterranean region.
2. Concerning marine areas, the definition of the Mediterranean Sea Area delimited in Article 2 of the Protocol shall apply, it being understood that, for the purposes of the preparation of national inventories, it shall be limited to the areas under the sovereignty or jurisdiction of the Party concerned.
3. Concerning terrestrial coastal areas, including wetlands, the following definitions shall apply:
 - (a) Coastal sites: sites including a stretch of coastline or being directly affected by the marine environment (e.g. coastal lagoons, estuaries, tidal flats, dunes, cliffs, ...);
 - (b) Coastal species: species directly linked to the marine environment in at least one stage of its life cycle and/or regularly occurring in coastal sites.

III. CRITERIA FOR THE PREPARATION OF NATIONAL INVENTORIES OF NATURAL SITES OF CONSERVATION INTEREST

1. The following definitions shall apply for the purpose of the use of this section of the criteria:
 - (a) *Natural habitat* means terrestrial or aquatic areas distinguished by geographic, abiotic and biotic features, whether entirely natural or semi-natural;
 - (b) *Habitat of a species* means an environment defined by specific abiotic and biotic factors, in which the species lives at any stage of its biological cycle;
 - (c) *Site* means a geographically defined area whose extent is clearly delineated;
 - (d) *Centre* means the Regional Activity Centre for Specially Protected Areas.

2. Each Party shall compile a comprehensive inventory of marine and terrestrial coastal sites under its sovereignty or jurisdiction important for the conservation of biological diversity.

3. The presence within the site of a significant sample of characteristic elements of Mediterranean biological diversity is the basic criterion for its inclusion in the inventory. Such elements shall include, in particular:

(a) threatened marine and coastal natural habitat types;

(b) the habitat of endangered or threatened species of the region.

To guide the identification of sites to be inventoried, the Parties shall jointly establish reference lists of these elements to be annexed to these criteria, taking into account Annexes 2 and 3 of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean and a model classification established by the SPA/RAC on the basis, among other elements, of the work available in this field among the Contracting Parties.

These lists may be revised by the Parties.

4. The significance of a site for a given natural habitat type shall be assessed on the basis of the following criteria:

(a) Degree of representativity of the natural habitat type on the site;

(b) Area of the site covered by the natural habitat type in relation to the total area covered by that natural habitat type within national territory;

(c) Degree of conservation of the structure and functions of the natural habitat type concerned and restoration possibilities;

5. The significance of a coastal site for a given species shall be assessed on the basis of the following criteria:

(a) size and density of the population of the species present on the site in relation to the populations present on the national territory;

(b) degree of conservation of the features of the habitat which are important for the species concerned and restoration possibilities;

(c) degree of isolation of the population present on the site in relation to the natural range of the species.

6. The significance of a marine site for a given species shall be assessed on the basis of the following criteria:

(a) size and density of the population of the species present on the site in relation to the populations present on the national territory;

(b) degree of conservation of the features of the habitat which are important for the species concerned and restoration possibilities;

(c) the endemic characteristics of the species at the local, national and regional levels;

(d) the role of the site in the whole or a part of the biological and food cycles of the particular species.

7. Information concerning each inventoried site will be compiled according to a standard format, which will have to be agreed by the Parties upon a proposal from the Centre. Such information will include, but will not necessarily be limited to, the fields detailed in the attached format to these criteria.

8. The inventories so established shall be reviewed and updated at intervals not exceeding 5 years.

**FORMAT OF INFORMATION CONCERNING THE SITES
INCLUDED IN THE NATIONAL INVENTORIES**

1. Site name .
2. Site location.
3. Area.
4. Site length (if possible).
5. Description of the site:
 - (a) threatened marine and coastal habitats (as per agreed reference list) present on the site and site assessment for them;
 - (b) threatened marine and coastal species (as per agreed reference list) present in the site and site assessment for them;
 - (c) other habitats and species of conservation interest;
 - (d) invasive species;
 - (e) other prominent natural features.
6. Reasons for choice.
7. Conservation status.
8. Threats.
9. Human activities in and around the site and their impact.
10. Land tenure.
11. Protection status.
12. Main conservation regulations.
13. International designation.

14. Conservation projects being implemented.
15. Management plans and practices.
16. Authority responsible for the management of the site.
17. Other institutions/organizations involved in site management (universities , NGOs, ...).
18. Date of first compilation.
19. Update.
20. Documentation on the site:
 - (a) site map;
 - (b) scientific publications and reports;
 - (c) aerial photographs;
 - (d) other pertinent material.

APPENDIX V

RECOMMENDATIONS OF THE MCSD CONCERNING THE MANAGEMENT OF WATER DEMAND AND THE SUSTAINABLE MANAGEMENT OF COASTAL ZONES

A RECOMMENDATIONS ON THE MANAGEMENT OF WATER DEMAND

The field of the management of water demand is one in which the most significant progress can be expected as regards water policies in the Mediterranean Basin. For the Mediterranean Commission on Sustainable Development, controlling the demand for water has become a priority political objective.

General Orientation

In most Mediterranean countries, the actual consumption of water is fast approaching the limits of resources available. The water shortages now emerging, whether circumstantial or structural, will undoubtedly spread and worsen over the coming decades. These shortages are due to the heavy increase in water demand. This demand has globally increased over the last quarter of a century by 60%.

Traditionally, this situation has been met by simply increasing the supply. But today this solution is nearing its limits. Mobilising extra resources is encountering obstacles of a social, economic or ecological order.

The time has arrived for water management to approach the equation from the other side by an effective management of the demand. Demand management and supply management with its potential improvement are to be done in an integrated manner.

This obvious fact and the recommendations which follow are thus dictated by the need to manage water demand in the Mediterranean region.

- C Such policies need to be targeted to the various uses and users and be part of integrated water management policies, characterized by the setting of specific quantified targets to be achieved within defined time periods. The policies should be constant and on-going , as well as be characterized by appropriate performance monitoring systems.
- C This approach must take into account the increasing demand for water coming from populations in both town and country areas, particularly as regards drinking water, but one must not forget the claims of social justice.
- C In the adoption, or the modification of economic development policies in all sectors, due consideration should be given, at a strategic level, to their potential impacts on the realization or not of the integrated water management policy and on how they will affect water demand. Such development policies should be appropriately adapted si as not to negatively affect the overriding need to reduce water demands.

Approach for Common Understanding and Recommendations

in the face of these findings, the MCSD has decided to devote 1997 among other short term priorities to studying the subject of water from the angle of demand management.

THE OBJECTIVES

The overall objective of this approach is to control demand within the broader strategic objective of sustainable water management in the Mediterranean. This objective breaks down into four points :

- C specifying the characteristics of water use systems with the strong points and the malfunctioning or inconsistencies inherent in the systems adopted;
- C identifying the socio-economic, institutional, legal and technical obstacles that hinder or prevent sustainable management of demand as well as their respective importance;
- C making a precise assessment of the water saving that could be achieved and estimate the efficiency and cost of this in terms of technical and economic feasibility;
- C identifying the socio-cultural, economic, institutional, legal and technical measures to be taken to remedy the defects and eliminate the obstacles to good water-demand management, so as to prevent shortages in the future.

The Approach Followed

A PRIMA FACIE ANALYSIS OF THE SITUATIONS OF THE 21 COUNTRIES AND ENTITIES RIPARIAN OF THE MEDITERRANEAN,

made it possible to situate these countries and entities in four groups all having a relatively similar situation in regard to the risk of shortages threatening them and to the future and present water demand:

1. ***Group 1: countries where there is no risk of shortages even beyond the year 2025*** (Albania, Bosnia and Herzegovina, Croatia, France, Greece, Italy, Monaco, Slovenia, and Turkey);
2. ***Group 2: countries where there is an occasional, more or less local, risk of shortages*** (Cyprus, Lebanon, Morocco, Spain, Syrian Arab Republic);
3. ***Group 3: countries where there will be occasional or structural shortages from the year 2000 despite present low demand for water*** (Algeria, Israel, Malta, Palestinian Authority, Tunisia);
4. ***Group 4: countries where there will be structural shortages from the year 2000, exacerbated by high demand for water*** (Egypt, Libyan Arab Jamahiriya).

THE INFORMATION ON WATER DEMANDS AND SYSTEMS OF WATER USE,

was collected from national experts through questionnaires and is presented in three reference documents that objectively clarify the context of the Mediterranean countries.

1. ***Problems of water demand management in Mediterranean countries.*** This introductory study reiterates the objectives, methods, means and tools of demand management, as well as approaches to assessing the feasibility of the water conservation predicted.
2. ***Summary of country information sheets.*** This represents an effort to improve, harmonize and update information on water use in Mediterranean countries.
3. ***Compendium "Principal criteria and statistics relating to water demand in the Mediterranean"***, which completes the summary by showing the most important figures available.

A WORKSHOP TO DISCUSS THE FINDINGS AND THE MEANS FOR BETTER MANAGEMENT OF WATER DEMANDS,

gathered experts and officials from 16 countries and 14 intergovernmental or non-governmental organizations, private firms and local authorities in Frejus (France), the 12-13 September 1997. The orientations of the discussions are provided in the ***Framework document*** of the workshop, and the ***Summary record*** details proposals, conclusions and general recommendations.

A SHARED ASSESSMENT

The findings brought to the attention of the community responsible for designing and implementing water policies in the Mediterranean lead them to highlight five main points.

1. ECOSYSTEMS ARE USERS IN THEIR OWN RIGHTS

The environmental demand for water by natural systems is an essential aspect of water demand in the Mediterranean.

Water withdrawal from natural media must respect the maintenance of an "acceptable minimum level" for the ecological conservation of ecosystems, which are also users in their own right;

2. WATER USE SYSTEMS ARE FAR FROM PERFECT

A large part of the water extracted appears to be badly or little used in most Mediterranean countries.

- C At least one third of the volume of water produced and distributed as drinking water in towns and villages leaks out through the network or is wasted by misuse.

- C Almost one half of the volume of water supplied for irrigation is lost through leakage during transport, badly adjusted modes of supply to the fields, low efficiency of the irrigation systems, and choice of overly water consuming crops.
- C Many industries, with defects in recycling, leakage and loss, and inefficient production processes, withdraw volumes of water that far exceed their needs, lowering its quality.

3. CLEARLY IDENTIFIED CAUSES

Three fields are involved:

- C Legislative and political: the concept of demand management has not been incorporated in all planning action and legislation because, for historical reasons, some countries lagged behind, but the balance of power is changing;
- C Socio-economic: water start to move from being seen as a natural asset to a rare economic asset, a product. But water also has social, cultural and environmental aspects that must be preserved. Awareness of this development is not sufficiently widespread among all actors in the water economy.
- C Technological: in general, the technology exists, but it is not always utilized. At the present time, not every country has access to the most modern technology.

Defects in water demand management lead to loss of resources, both in terms of quantity and quality, as well as economic losses, and consequently lower profitability.

The volume of water lost or wasted is an unexploited “ water bank ” . Therefore water demand management will be more efficient than other water supply alternatives. The possibility of saving water must be considered at each stage of water management, from extracting the water for use to the discharge of wastewater into the environment. Demand management should focus principally on the weakest link in the chain of use.

4. AN UNEXPLORED “WATER BANK”

For all the Mediterranean countries, a preliminary estimate of the amount of water that could be saved by more rational management of use and consecutive lower demand shows a significant volume (75.5 km³/year) compared with the additional water to be supplied to cover growth in demand forecast for the next twenty to thirty years (+ 85 km³/year for the year 2010 on a high hypothesis, and + 148 km³ in 2025).

- C the most beneficial savings in terms of volume would be in the irrigation sector : reduced losses during transport together with greater efficiency (71 per cent of the total, more than half of which due to improved efficiency),
- C next in order of importance comes better recycling by industry (18 per cent),
- C then reduction of loss, leakage and wastage of drinking water in local communities (10 per cent), although these would be of greater value in view of the higher cost of producing and distributing drinking water.

5. POSSIBLE IMPROVEMENTS

It is technically possible to conserve a large part of the water lost or wasted and this would cost a lot less than the cost of providing new supplies to cover future additional needs.

Water demand management thus seeks both to reduce “non-use” of water extracted or produced and “misuse”, in other words, material and/or economic wastage under both aspects. These comprise: practical defects in use systems (loss, leaks, lack of efficiency), unnecessary or superfluous use, excessive use of high-quality water when a lower quality would suffice, badly chosen use and reuse, defects downstream of use . It is necessary simultaneously:

- C to reduce demand or at least slow down its increase;
- C to harmonize demand and supply possibilities as far as possible;
- C to coordinate and maximize multiple uses of limited water resources;
- C to alter the factors governing water requirements and adapt the sectoral structure of water use, promoting the most effective.

Water demand management utilizes means that differ according to the type of defect to be remedied. Certain means, particularly those of a technical nature, are direct water conservation factors; other more indirect means facilitate and govern the application of the former and affect the behaviour of the users (economic and financial, socio-cultural, legal and regulatory tools). All demand management tools should be utilized in harmony. Such a synergy enhances the effectiveness of management provided that application of the tools is coordinated by the same management authority;

Although they all have the same purpose, demand management strategies, together with the choice of priority solutions and the “orchestration” of the different management tools will depend to a large extent on the major types of defect, the competing supply/demand levels, and the socio-economic means and situation in each country.

Guidelines for Action

To incorporate water demand management effectively in national water strategies, development and environmental policies.

- C Promote effective incorporation of demand control objectives in water planning policies and in all sectoral development policies as well as water conservation policies that have an impact on water requirements:
 - *trying to set deadlines to achieve such objectives.*
- C Undertake feasibility studies on water conservation possibilities (potential savings, methods, costs, time limits, legal, financial and control criteria, etc.):
 - *evaluate more precisely the feasibility of demand control operations (volume of water to be conserved at competitive cost) under different circumstances and in different socio-economic and cultural situations.*

- C Promote investment in activities that use water as efficiently as possible (particularly in agriculture) and in industry:
- *ensure that investment (restoring or building new networks, use methods, crop patterns) is preceded by feasibility studies on scenarios that also incorporate comparisons of the effect on demand;*
 - *ensure that the recycling efforts by industry are advantageous for it.*

1. To develop among the public, economic stakeholders, managers and decision-makers awareness of the importance of loss and waste of water, both in economic terms and in volume of water, and to awaken a sense of responsibility among users with a view to better management of water demand.

- C Implement awareness promotion campaigns at all levels:
- *sensitizing each user about waste and water-saving opportunities, by combatting wastage through simple behaviour, illustrated by practical examples;*
 - *make people aware of the value of water and the risk of shortages, followed by medium-term and long-term action;*
 - *use the support of associations and utilize all types of audiovisual communication media, educational materials and action ("water classes") adapted to each country.*

- C Facilitate access to information on water demand:
- *provide information on water prices and charges;*
 - *utilize the active participation of expert water networks in the Mediterranean and study the possibility of facilitating exchange of information through the development of the Euro-Mediterranean information system on know-how in the water sector, agreed upon at the water management conference held in Marseille.*

2. To improve among the public, economic stakeholders, managers and decision-makers, knowledge and evaluation of the potential advantages to be gained from more economical management of water demand, laying emphasis on total transparency.

- C Set up mechanisms for collecting data in order to have a better knowledge of the efficiency of the networks and use systems, including by,
- *metrology (installing equipment to measure water outflow, quality, etc...). Control and maintenance of metering systems at all levels: production, distribution, consumption, are preconditions for any approach to saving water. There must be strict follow-up and maintenance policy and appropriate equipment;*
 - *more comprehensive, more precise and more regionally-focused information on water use in each sector (quantities and variability, real needs and use yield, but also quality, modes of supply, role of intermediaries, payment of costs, flexibility, price variations, etc.);*
 - *institutional strengthening permitting regular analysis of relevant measures and data in order to give decision-makers objective elements on which to base decisions and subsequent monitoring and to supply the public with transparent information.*
- C Prepare and take into account indicative objectives and standards for the major forms of use in terms of quantity and quality:
- *standards help to identify real needs and serve as a reference point for estimating*

- *wastage;*
- *promoting research in this area.*

3. To undertake practical demand control activities

- C Carry out pilot projects to improve the efficiency of use systems (networks, processes, etc.):
 - *aim in particular at proper capitalization and utilization of the results in order to develop such strategies.*
- C Improve the output of water distribution and use networks, whilst focusing on maintenance:
 - *improve control of water distribution (flow, pressure), especially downstream control (drinking water, irrigation);*
 - *envisage privatizing water distribution services with caution, gradually and transparently, when this can help to improve distribution networks;*
 - *set quantified good management targets of general interest for distribution bodies, for example, through contracts drawn up when the State allocates resources;*
 - *develop more economical irrigation procedures (mini-sprinklers, droplets) promoting them through economic measures (including agricultural prices);*
 - *promote the expansion of use of low-quality water (saltwater, brackish water or seawater, as well as treated urban and industrial wastewater) instead of drinking water, wherever this can be done at reasonable cost.*
- C Develop sophisticated and graduated systems of prices and charges:
 - *this implies that awareness of the real cost of producing, distributing and treating water should be more transparent, i.e. there must be clear accounting procedures in the management bodies so that the water cost/price differential, and consequently the impact of various political options for setting prices, can be estimated better;*
 - *take into account demand management objectives properly (according to the different forms of use, extraction methods, water quality ...). The method used to fix water charges must be clear in order to be understood, easy to use in order to be applied, realistic in order to be accepted. Gradual fixing of charges by volume for agriculture and for drinking water is deemed preferable.*
- C Make users directly understand the meaning and objective of financial incentives in the form of penalties (taxes, charges ...) or encouragements (subsidies). These incentives can be other tools to orient consumption.
- C Promote better incorporation of the imperatives of demand management in all sectoral development policies so as to reduce demand:
 - *better understanding of the interaction between water management strategies and sectoral development policies that have an impact on water demand in each country;*
 - *strengthen the role of coordination institutions at the national level in relation to water demand (regime to authorize the extraction of water, etc.);*
 - *institutionalize participation by users in decision-making (association of farmers using irrigation, etc);*
 - *if there is an authorization regime, an effective water police provided with the human and financial resources;*

- *improve water harvesting and recharge technics for groundwater.*

4. To encourage cooperation among groups of countries facing the same demand management problems and future shortages:

C Encourage the transfer of know-how by and for managers:

- *transfer of technology and training for proper mastery of effective water conservation technologies;*
- *exchange of experience among countries that face common problems but have different and complementary strategies;*
- *ensure that water demand management becomes an area of training that is just as important as resource management for technical managers of water planning and use.*

C Implement economic and technical cooperation on water in line with the objectives of water demand management:

- *promote cooperation that will lead to water savings;*
- *ensure that the strengthening of economic partnership, through the establishment of a free trade area by the year 2010 and through financial cooperation, will not have a negative effect and thus lead to environmental degradation in the management of natural resources, including water, and will ensure the food security of the most vulnerable countries. These are two essential requirements for the establishment of the components of sustainable development within a systemic and rational approach.*

B. RECOMMENDATIONS ON THE INTEGRATED AND SUSTAINABLE MANAGEMENT OF COASTAL ZONES

Taking note of the findings of the working group convened in Benidorm under the guidance of the two task manager, Morocco and Medcities¹ (21-23 September 1997), and in light of the work of RAC/BP and RAC/PAP, on the rapid degradation of many coastal areas, such as islands, with its inherent risks to certain economic activities, the MCSD adopted the following draft recommendations:

- (I) To improve institutional mechanisms for the integrated management of coastal areas by creating if necessary and/or strengthening inter-ministerial or inter-administrative structures and frameworks for the coordination of the actors involved in coastal development and management and the integration of their activities.

Such structures should be set up at the level relevant to each country (national, regional, local).

Local and regional authorities should be invited to play a significant role in the preparation of integrated coastal management strategies.

- (ii) To establish or strengthen and enforce legislative and regulatory instruments:
- On the regional scale, to prepare guidelines for implementing appropriate national legal instruments.
 - On the national scale, the legislative instruments should:
 - define the coastal areas concerned;
 - require that for all coastal areas subject to development pressures, management plans be prepared;
 - ensure that management plans be accompanied by environmental impact studies;
 - establish regulations for development and protection to promote sustainable management of coastal areas including regulations on the protection of sites of ecological and landscape value on preventing dispersed urban development, or development too close to the shore and on ensuring proper provision of environmental infrastructure for areas already urbanised.
 - Until regional or local development plans are in force, conservation provisions to protect natural and coastal areas should be adopted and implemented.
 - Finally, provisions should be made to ensure the implementation of the

¹ PAP report MCSD/18/97/W1

foregoing provisions; to that effect:

- **the organisations responsible for coastal development and protection should be strengthened; staff should receive appropriate training as needed;**

- effective law enforcement mechanisms should be provided or strengthened;
 - when necessary and with respect to national conditions, court action should be made easier everywhere to oppose planning decisions;
 - an efficient system for liability and sanctions should be established.
- (iii) To ensure access to information in order to raise awareness and training for the largest possible number of actors. Capitalizing on and disseminating information should be encouraged through exchanges of experience and transfer of know-how by making use of MAP structures.
- (iv) To establish appropriate systems of incentives for the integrated management of coastal areas by developing economic, financial and tax instruments which would ensure that the costs of the protection and management of natural areas would be linked to as well as balanced by the financial resources generated by development. Funds from multilateral services, bilateral cooperation and domestic resources should be better coordinated.
- (v) To develop with the support of relevant international organizations and of the European Union, practical pilot projects in the field of coastal areas management and disseminate the results.

Priority should be given to projects concerned with:

- coastal areas subject to potential or actual conflicting uses;
 - other areas of environmental, economic or social significance like islands and deltas.
- (vi) The role of the public is very important within the context of sustainable development of coastal areas, according to a principle of joint responsibility which should be encouraged. The main object is to increase opportunities and improve the effectiveness of active public participation.
- to that effect, participation mechanisms, such as advisory committees, public enquiries and hearings and actual participation in the management should be developed.
 - the MCSD further proposes:
 - setting up good practice guidelines on the integrated management of coastal areas;
 - drafting a regular report on the state of the environment of coastal areas; and putting assessment tools in place with the support of public stakeholders;
 - developing new forms of partnership between the public and other stakeholders to encourage innovative ideas;
 - inviting the public to participate in the decision-making processes;

- **strengthening the cooperation which promotes exchange of experience and adds incentives for the public to implement integrated management programmes and projects for coastal areas.**

National, regional and local strategies and Mediterranean partnerships should be promoted in order to ensure a sustainable management of coastal areas.

APPENDIX VI

RULES OF PROCEDURE OF THE MEDITERRANEAN COMMISSION ON SUSTAINABLE DEVELOPMENT (MCSD)

PURPOSE

Rule 1

The Rules of procedure shall apply to the meetings of the Mediterranean Commission on Sustainable Development (MCSD) as provided in section B.4 of its Terms of Reference.* They compliment the framework for operation of MCSD, as described by the "Terms of Reference" and the "Composition of the Commission" in the annexed documents adopted by the Contracting Parties.

DEFINITIONS

Rule 2

For the purpose of these rules:

1. the word "Commission" shall apply to the "Mediterranean Commission on Sustainable Development";
2. the term "Barcelona Convention" shall apply to the 1976 Convention for the Protection of the Mediterranean Sea against Pollution as amended in 1995;
3. the term "Coordinator" shall apply to the Coordinator or the Coordinating Unit of the Mediterranean Action Plan or his designated representative;
4. the term "Secretariat" shall apply to the Coordinating Unit of the Mediterranean Action Plan (MAP) as provided in article 17 of the Barcelona Convention as amended;

PLACE OF THE MEETINGS OF THE COMMISSION

Rule 3

The meetings of the Commission shall be held at the seat of the Coordinating Unit of MAP, unless convened in other Mediterranean venues in pursuance of a recommendation of the Commission approved by the meeting of the Contracting Parties.

* Document UNEP(OCA)/MED IG.8/7, Annex V

- During the time between the Parties' meeting the approval maybe given by the Bureau of the Parties to the Convention.
- For reasons of optimal use of available resources, the meetings within the MCSD context may be coordinated as appropriate with other relevant MAP meetings.

DATES OF THE MEETINGS OF THE COMMISSION

Rule 4

1. As provided in Section E(7) of the Terms of Reference of the Commission, the Commission shall hold meetings at least once every year, up to the year 2000, then shall meet at least once every two years.
2. The Coordinator shall convene the meetings of the Commission.
3. The Commission shall, at its meeting, fix the opening date and the duration of the next meeting.

INVITATIONS

Rule 5

1. The Coordinator shall invite to send representatives to participate in the Commission's meetings as observers, the United Nations and its competent subsidiary bodies, and the Specialized Agencies if they participate in the activities of the Mediterranean Action Plan, or have direct concern with environment and sustainable development issues in the Mediterranean.
2. The Coordinator shall, in agreement with the Steering Committee, invite to send representatives to participate in the Commission's meetings as an observer, any state which is a member of the United Nations which so requests and has direct concern with environmental and sustainable development issues in the Mediterranean.
3. The Coordinator shall, in agreement with the Steering Committee invite to send representatives to participate in the Commission's meetings as an observer, any other inter-governmental organizations, including financial institutions, which would interest itslef directly in issues of environmental protection and sustainable development in the Mediterranean, the activities of which are related to the functions of the Commission.
4. Such observers may, as provided in Article 20(2) of the Barcelona Convention as amended, participate in the Commission's meetings and may present any information or report relevant to the work of the Commission and in matters of direct concern to the organizations they represent.

PUBLICITY

Rule 6

Plenary sittings of the meetings of the Commission shall be held in public, unless the Commission decides otherwise. Sittings of subsidiary bodies of the meetings of the Commission shall be held in private, unless the meeting of the Commission decides otherwise.

AGENDA

Rule 7

In agreement with the Steering Committee of the Commission, the Coordinator shall prepare the provisional agenda for the meeting of the Commission and shall communicate it to the members of the Commission at least six weeks before the opening of the meeting together with supporting documents.

Rule 8

The provisional agenda of each meeting shall include:

1. all items mentioned in section B.3 of the Terms of Reference of the Commission;
2. all items the inclusion of which has been requested at a previous meeting of the Commission;
3. any item proposed by a member of the Commission;
4. the report of the Coordinator containing information on relevant sustainable development activities, the progress achieved and emerging issues to be addressed;
5. reports of the Task Managers and the Thematic Working Groups;
6. all items pertaining to the financial arrangements relevant to the Commission.

Rule 9

The Coordinator shall, in agreement with the Steering Committee of the Commission, include any question suitable for the agenda which may arise between the dispatch of the provisional agenda and the opening of the meeting in a supplementary provisional agenda which the meeting of the Commission shall examine together with the provisional agenda.

Rule 10

At the opening of an ordinary meeting of the Commission, the members of the Commission, when adopting the agenda for the meeting, may add, delete, defer or amend items. Only items which are considered by the meeting to be urgent and important may be added to the agenda.

Rule 11

At the beginning of each meeting, subject to the provision of Rule 10, the Commission shall adopt its agenda for the meeting on the basis of the provisional agenda and the supplementary provisional agenda referred to in Rule 9.

Rule 12

The Commission shall normally consider for the meeting only agenda items for which adequate documentation has been circulated to members six weeks before the beginning of the meeting of the Commission.

REPRESENTATION

Rule 13

All members of the Commission shall participate in the Commission on an equal footing.

Each member of the Commission shall be represented by representative accredited, who may be accompanied by such advisers as may be required.

Rule 14

The names of representatives and advisers shall be officially submitted by the members of the Commission to the Coordinator, before the opening sitting of a meeting which the representatives are to attend.

Rule 15

At the first sitting of each meeting of the Commission, the President of the previous ordinary meeting, or in his absence a Vice-President designated by him, shall preside until the meeting has elected a President for the meeting.

Rule 16

If the President is temporarily absent from a sitting or any part thereof, he shall appoint one of the Vice-Presidents to assume his duties.

STEERING COMMITTEE OF THE COMMISSION

Rule 17

The Steering Committee shall include four members representing the Contracting Parties, including *ex officio* the President of the Bureau of the Contracting Parties, and one representative from each one of the three categories foreseen by the Terms of Reference of the MCSD.

At the commencement of the first sitting of each meeting, the Commission shall elect the Steering Committee, which is composed of a President, five Vice-presidents and a Rapporteur, on the basis of an equitable geographical distribution, and among the various groups in accordance with the distribution indicated in the paragraph above.

Rule 18

Should the need arise, the Coordinating Unit in agreement with the President of the Steering Committee, could convene one meeting of the Steering Committee between two Commission meetings to ensure the follow-up and smooth running of the work decided by the Commission. The report and working documents are to be circulated to all members of the Commission.

Rule 19

1. The President, or in his absence one of the Vice-Presidents designated by him shall serve as President of the Steering Committee.
2. If a member of the Steering Committee resigns or otherwise becomes unable to continue to perform his functions, a representative of the same member of the Commission shall replace him for the remainder of his mandate.

ORGANIZATION OF THE MEETING OF THE COMMISSION

Rule 20

1. During the course of a meeting, the Commission shall establish thematic working groups and other working groups as it deems necessary, and to refer to them the themes identified by the Commission as of great importance for the sustainable development of the Mediterranean region for study, and proposal. Such working groups could sit while the Commission is not in session, ensuring thus, together with the Steering Committee, the continuity of the Commission between its sessions.
2. Unless otherwise decided, the Commission shall select task managers for each thematic working group and a chairman for other working groups.
3. The Commission shall define the mandate and composition of the working groups and Task Managers.

Rule 21

The Coordinator shall act as Secretary of any meeting of the Commission. He may delegate his functions to a member of the Secretariat.

Rule 22

The Coordinator shall provide the staff required by the Commission and shall be responsible for all the necessary arrangements for meetings of the Commission.

Rule 23

The Secretariat shall arrange for interpretation of speeches, receive, translate and circulate the documents of the meetings of the Commission and its working groups; publish and circulate the decisions, reports and relevant documentation of the meeting of the Commission. It shall have custody of the documents in the archives of the meeting of the Commission and generally perform all other work that the Commission may require.

LANGUAGES OF THE COMMISSION

Rule 24

Arabic, English, French and Spanish shall be the official languages of the Commission. English and French shall be the working languages of the Commission if available financial resources do not allow for the use of the four official languages. English and French shall be the working languages of meetings of the Steering Committee of the Commission and of working groups.

CONDUCT OF BUSINESS

Rule 25

The Rules of procedure for Meetings and Conferences of the Contracting Parties concerning Conduct of Business (Rules 30-41) shall apply *mutatis mutandis* to the Conduct of Business in the meetings of the Commission.

PROPOSALS OF THE COMMISSION

Rule 26

Proposals of the Commission shall be adopted by consensus. These proposals will be presented to the Contracting Parties' meetings.

RECORDS OF THE MEETINGS OF THE COMMISSION

Rule 27

Sound records of the meetings of the Commission shall be kept by the Secretariat in accordance with the practice of the United Nations.

AMENDMENTS OF PROCEDURE

Rule 28

Any amendments of the Rules of Procedure should be approved, after proposal of the Commission, by the meeting of the Contracting Parties to the Barcelona Convention.

ANNEX V

**MEDITERRANEAN CHILDREN CONFERENCE
(Tunis, 28-30 August 1997)**

CHILDREN'S RECOMMENDATIONS, MESSAGES AND PROPOSALS