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MEDITERRANEAN ACTION PLAN

*Ad hoc* Consultation of Regional Experts on the Mediterranean GEF Project

Athens, 14-16 January 1997

# REPORT

# *AD HOC* CONSULTATION MEETING OF REGIONAL EXPERTS ON THE MEDITERRANEAN GEF PROJECT

UNEP
Athens, 1997

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## Introduction

The Ad Hoc Consultation of Regional Experts for the Formulation of the Outline of the Strategic Action Programme for the Mediterranean Sea, to address pollution from land-based activities, was convened in Athens, from 14 to 16 January 1997, at the UNEP/MAP Coordinating Unit Office, in the framework of the Project Development Facility (PDF) grant of GEF. The list of participants is attached as Annex I and the Agenda as Annex II.

## Agenda item 1. Opening of the meeting

1. Mr F. S. Civili, MAP First Officer, opened the Ad Hoc Consultation on behalf of the MAP Coordinator and welcomed the participants. He explained that the Meeting was organized as part of the Project Development Facility (PDF) Block B grant of GEF to formulate a Strategic Action Programme for the Mediterranean Sea. to address pollution from land-based activities. The Meeting had the purpose to review the strategy of the GEF initiative and discuss the preparation of the three basic documents required under the PDF grant. While he welcomed the presence of the National Coordinators of Greece, Tunisia and Turkey, and of the MAP consultants, he noted with regret the absence of the representatives of the World Bank and UNDP. He stressed the importance of the Consultation underlining that its results would guide the development of the initiative.

## Agenda item 2. Background, objectives and prospectives of the Mediterranean GEF project

2. Under this Agenda item, Mr Civili informed the participants that the initiative had been proposed to GEF International Waters by the MAP secretariat in 1996 and that it had been approved with a duration of 15 months (October 1996 - December 1997). The main objectives of the initiative are to prepare a targeted and costed Strategic Action Programme to address pollution from land-based activities including the elements for the formulation of national action plans and a GEF Project Brief for submission to the GEF Council. The initiative would be concluded by the convening of a Donors' Conference at which the full GEF Project would be discussed containing proposals for remedial interventions related to well identified and costed transboundary pollution issues.

### 2.1. The "GEF International Waters Operational Strategy and Programmes"

3. Mr J. Pernetta, UNEP/GEF Senior Programme Officer for International Waters, briefed the participants on the GEF International Waters Portfolio which is one of the smallest comprising around 14 per cent of present GEF commitments. He noted that unlike Climate Change and Biodiversity, GEF interventions under this section of the Operational Strategy were not guided by Contracting Parties to any global Convention and that all GEF projects in International Waters (whether in marine or freshwater environments) were envisaged as multi-country rather than single-country as in the case of the other two portfolios.

4. Mr Pernetta further noted that the definition of International Waters was extremely broad encompassing oceans, large marine ecosystems, inland lakes and river systems and that the priority for intervention included land-based sources of pollution, water-related issues stemming from land degradation, critical habitats, unsustainable exploitation and ship-based sources including introduction of non-indigenous species through ballast water discharge. In concluding, he noted that the Transboundary Diagnostic Analysis and the Strategic Action Programme were seen within the GEF as two essential tools required to provide guidance concerning specific interventions and

projects in the International Waters portfolio. The PDF grant was designed therefore to develop these tools in the Mediterranean as a prelude to the development of an appropriate GEF Project brief.

**Agenda item 3. Methodology of work, workplan and timetable for the implementation of the project**

5. Mr Civili briefly recalled the steps taken since the approval of the grant by GEF. He informed the participants that in October 1996 all MAP Focal Points were informed of the activity stressing the relevance that the initiative had for the implementation of MAP and the new LBS Protocol. The initiative in fact would produce a targeted and costed Strategic Action Programme (SAP) to address pollution from land-based activities, guidelines to formulate the related national action plans, and a regional report on the identification of "hot spots", i.e documents all fully in line with the requirements of the LBS Protocol. In addition, the initiative would also foresee the preparation of a Transboundary Diagnostic Analysis (TDA) which, in the short-term, would be the basis for the preparation of the SAP and, in the medium- and long-term, could be the basis for pollution remedial interventions in the region by both outside donors and the countries themselves.

6. He recalled that the MAP Focal Points were also asked to designate a National Coordinator who would follow up the initiative at the national level and facilitate the implementation of the activities. In addition, the MAP Focal Points were asked to establish, whenever possible, inter-ministry working groups to ensure that the views of all relevant government structures were taken into account in the preparation of the SAP, the TDA and the report on 'hot spots". In December 1996, in view of the very few answers received from MAP Focal Points, a reminder was sent which eventually resulted, by the day of the present meeting, in the designation of National Coordinators from 17 countries (see Annex III). However, only one country referred of the establishment of an inter-ministry working group.

7. As indicated by the GEF grant, and in view of the very extensive and multidisciplinary work involved, Mr Civili recalled that a number of consultants from the region had been identified to assist the Governments in the preparation of the SAP, the TDA and the report on the "hot spots". He also informed the participants that, while the overall coordination of the activities would remain the responsibility of the MAP/MED POL Secretariat, the specific coordination of the work related to the preparation of the report on the "hot spots" had been assigned, within MAP, to WHO.

8. He also informed the Consultation that continuous contacts were kept with the UNEP/GEF Coordination Unit in Nairobi and, through it, with the other GEF partners, i.e. the GEF Secretariat in New York, UNDP and the World Bank. The GEF grant in fact included the creation of a Steering Group composed of the above organizations and MAP, which would regularly meet to review the development of the activities. The first Meeting of the Steering Group was held on 13 January 1997 in Athens at the MAP Coordinating Unit Office.

9. Finally, he briefly reviewed the main planned activities of the initiative. The first draft of the "hot spots" document had to be completed by 15 April 1997 and the first drafts of the SAP and the TDA by May 1997 on the basis of the results of the present ad hoc Consultation, contacts with the National Coordinators, country visits and review meetings with the Consultants. The drafts would then be presented to a Government-designated Expert Meeting to be held in Italy in June 1997 where they would be discussed and revised as necessary. A Meeting of the National Coordinators would be held in September 1997 in Athens to specifically review guidelines for the formulation of national action plans based on the SAP. In November 1997, at the Meeting of the Contracting Parties to the Barcelona Convention to be held in Tunis, the SAP would be presented, reviewed and approved together with the TDA and the report on the "hot spots". Finally, in December 1997, in

Athens, a Donors' Conference would examine the SAP and the TDA and formulate a full GEF Project to consider the implementation of specific remedial interventions related to regional transboundary pollution issues.

10 The participants noted the overall implementation plan presented and stressed the difficulties inherent to the preparation of such comprehensive documents in a short period of time. It was however agreed that, through a good coordination work and an active participation of the countries and the National Coordinators, and in view of the fact that the documents would be based on already existing data and information, the initiative could produce good and useful results. It was also stressed that the outcomes of the initiative would greatly contribute to the future implementation of the LBS Protocol.

## Agenda item 4. Review of draft outlines of the documents to be prepared

11. The draft outlines of the three main documents were introduced for review and discussion by the experts/consultants in charge of their preparation. In particular, the draft outline of the SAP was introduced by Mr J. Ros, the TDA by Mr L. Jeftic and the report on the "hot spots" by Mr G. Kamizoulis, WHO Officer, and Mr. O. El-Kholy.

12. During the discussion on the draft documents, the issue of the coverage of the SAP in relation to the TDA was raised. It was in fact noted that while the proposed TDA was virtually addressing all the problematic issues of the region, the SAP, as outlined in the project document and as presently drafted, was strictly limited to those issues related to pollution from land-based activities. It was in particular stressed that, for example, biodiversity issues, although expected to be treated in their entirety in the TDA, might be only partially addressed by the SAP in view of their stronger relation to inappropriate management rather than land-based pollution.

13. Mr Pernetta explained that the approach proposed in the draft documents was correct. In fact, according to the GEF policy, the TDA had to be an overview of all regional problems to be used not only for the preparation of the SAP -which related to land-based pollution-, but also for other possible projects to be implemented in the future. In other words, the TDA provided a platform with data and information on which to base future regional interventions by individual countries and outside donors.

### 4.1. Strategic Action Programme

14. In introducing the discussion on the interdependency between the SAP and the TDA, Mr Pernetta noted that the Transboundary Diagnostic Analysis should provide the justification for the actions proposed in the Strategic Action Programme. The TDA would identify the issues and problems, identify and quantify the causes, both proximate and ultimate (root causes) and provide the list of possible actions to address the major issues and problems.

15. The SAP should set targets that may be very detailed for example in terms of reducing the amount of pollutant to X by year 10 say. In many instances these targets may not be set this precisely hence an intermediate target might be to: Agree to establish 'standards' by year X and agree on a schedule of subsequent compliance.

16. The SAP should contain clear statements of **where** one wishes to be - in terms of environmental quality - in a specified time, i.e. by **when.** In addition, the SAP should clearly spell out **how** it is intended to arrive at that point. The **how** should include details of required economic or legal instruments as facilitation mechanisms but these alone would be inadequate. In addition.

the nature of required actions (**what**) should be spelled out together with a clear statement as to **who** is required to undertake the action.

17. The justification of the recommended actions (the **what** and **how**) would be provided through the economic and financial analysis that should spell out as accurately as possible:

- the **costs** of action (and inaction) and,
- the benefits of action (and inaction) i.e. some measure of the extent to which economic or human welfare benefits could be related to the economic costs or required inputs or actions.

18. Mr G. Constantinides, MAP Consultant for the preparation of the Investment Portfolio, explained the necessary steps to be made by the Consultants and the National Coordinators which would allow the preparation of the Portfolio, which are attached to this report as Annex IV.

19. Mr Ros introduced the annotated outline of the draft Strategic Action Programme explaining that it would be based on the results of the TDA as well as on the objectives of the LBS Protocol and the Washington GPA. The actions which would be proposed in the SAP would be of legal, institutional and technical nature and would directly depend on the results of the TDA. However, they should also take into account the priorities set by the LBS Protocol and would be limited to interventions related to land-based pollution issues. The document would also contain an pre-investment portfolio and a timetable for the implementation of the actions proposed.

20. After discussion on the content of the proposed SAP, the meeting agreed on an outline which is attached to this report as Annex V.

### 4.2. Transboundary Diagnostic Analysis including the identification of "hot spots"

21. Mr Jeftic introduced the annotated outline of the TDA including the subjects to be treated, the method of work and a timetable. The document would contain a list of selected transboundary problems, the causes and the remedial actions proposed including a detailed economic and financial analysis. In view of the very many and very different subjects, a number of experts and institutions would be required to obtain the data and information needed for the preparation of the TDA. In addition, the close involvement of the National Coordinators and the Inter-ministry committees was recognized as vital to ensure acceptance by the governments of the outcome.

22. The outline was found to be very extensive in coverage but, on the basis of the overall strategy explained by Mr Pernetta, it was agreed that it would properly respond to the requirements and the objectives of the GEF initiative. The annotated chapters of the outline were discussed in detail by the participants and some minor changes were suggested. As a result, the Meeting agreed on the draft outline as it appears in Annex VI to this report.

23. While discussing the chapter on "Rivers", it was brought to the attention of the participants that the need to obtain data on pollution loads not only from the major rivers of the region but also from a number of minor rivers had been indicated in the terms of reference of the contract proposed to an expert contacted to prepare the chapter. In view of the importance of the subject and the declared impossibility of the expert contacted to obtain such data, it was agreed to propose the contract to other experts and institutions.

24. Before concluding the discussion on the TDA, Mr Pernetta provided two examples as guidance to the nature of the content of both the TDA and the SAP which appear in Annex VII to this report.

25. Mr Kamizoulis introduced the method of work, a timetable and a number of questionnaires related to the collation of the data on national and regional priority "hot spots" and sensitive areas.

26. The participants found the proposed work very detailed and appropriate for the needs of the initiative. The document was examined in detail and a number of minor changes were suggested. The revised version of the document is attached as Annex VIII to this report.

27. The participants stressed that the success of this planned activity mostly depended on the active involvement and participation of the National Coordinators in view of the type of data that needed to be collated and the need to involve governments in the identification of priority issues and identification of possible remedial actions. It was pointed out that it was essential to reiterate that the exercise should be based on already existing data, a factor which made the exercise feasible in spite of the very short time available.

## Agenda item 5. Discussion and conclusions

28. The participants found the draft outlines generally adequate and in line with the requirements of the GEF initiative. The very short time at the disposal of the experts for the preparation of the documents was however a cause of some concern as to the actual possibility to obtain all the data needed.

29. As a result, the Meeting agreed on a timetable for the activities related to the preparation of the documents which is attached as Annex IX to this report.

## Agenda item 6. Closure of the Meeting

30. Mr Civili thanked the participants for their active participation and contribution to the success of the initiative. He closed the Meeting at 13,30 hours of 16 January 1997.

# ANNEX I

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# ANNEX II

# AGENDA

1. Opening of the meeting

2. Background, objectives and prospectives of the Mediterranean GEF project

   2.1. The "GEF International Waters Operational Strategy and Programmes"

3. Methodology of work, workplan and timetable for the implementation of the project

4. Review of draft outlines of the documents to be prepared

   4.1. Strategic Action Programme
   4.2. Transboundary Diagnostic Analysis including the identification of "hot spots"

5. Discussion and conclusions

6. Closure of the Meeting

# ANNEX III

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# ANNEX IV

## INVESTMENT PORTFOLIO

### Cost Information needed for the Investment Portfolio
### Guidelines to assist the National Coordinators and the Consultants

**Basic Points about the Investment Portfolio**

o The Project Document requires: "the formulation of a costed and targeted SAP for projects and activities for the protection of the Mediterranean Sea against degradation from land-based activities .... will include a basis on which to develop an Investment Portfolio to address the most acute environmental problems" (which will need funding for their implementation).

o The Investment Portfolio will comprise: the estimated cost of interventions identified, analyzed and proposed in the Hot Spots Report and the TDA.

o The data needed for the Investment Portfolio: will be generated and made available by the Country Reports and through the Consultants' Country visits.

o The main purpose to be achieved by the investment Portfolio: is to reflect the economic implications of the SAP, to a degree of detail consistent with the specification of proposed actions and the available cost data, in order to justify the required investment and donor support in terms of estimated cost and expected benefits.

o It is therefore important that the information collected at the country level by the National Coordinators and the Consultants should include estimated costs of proposed actions/projects. All actions/projects proposed will have a cost, this cost should be included for the reasons mentioned above.

**Key pointers for data collection**

1. **Cost information does not mean either all or nothing, either accurate information or nothing**. Cost information should be as accurate as possible. However, if rough estimated cost is the best we can do, this will be more useful than no information. Remember that very accurate costs will be needed only much later when specific projects will be constructed through a tendering procedure.

2. **The SAP will be incomplete without an Investment Portfolio**. Cost information can be obtained if attention is focused on it and questions are asked. Everybody knows that actions cost money. Please assess that cost which reflects the detail or the generality of the proposed action.

3. **Try to attach a cost to all proposed actions** including capacity building, study for determining quality standards, establishing an information system, capital grants for new technology to the private sector, subsidy for improved practices or public participation and information programme. Actions will be more than Waste Water treatment plants. They may be programme costs, administrative and staff costs, etc. What is of interest is the capital cost or the cost of establishing the facility.

4. **Try to identify the pollution sufferers and future beneficiaries**. Pollution hot spots impacts often fall on a population group (e.g. low income neighbourhoods), production activity (e.g. agriculture, fisheries, tourism) sensitive ecosystem (or other). Such information will help identify the group/sector **suffering the damage from pollution so that benefits may be traced as a result of pollution control investment**.

**EXAMPLE**

**SUMMARY OF THE ENVIRONMENTAL INVESTMENTS**

| Sector | Company Name | Annual Production | Major Environmental Issue[1] | Sub-project | Sub-project Purposes | Estimated Project Cost ($US 000) | Estimated Pay Back Period (Years)[2] | Type of Project Technology[3] | Priority |
|---|---|---|---|---|---|---|---|---|---|
| **BOMBAY**<br>**Public Sector** | | | | | | | | | |
| Chemicals | XYZXYZ | 4400 tons of textile chemicals and pesticides | Discharge of acids to waste water and to air | Installation of acid recovery/regeneration | Reduction in acid losses; Reuse of acid | 500 | 0.8 | PP | 1 |
| Chemicals | XYZXYZ | 1 3 million tires/year | Atmospheric release of carbon black and other feed chemicals | 1. Installation of automated feed<br>2. Installations of instrumentation | Reduction in carbon black/chemical loss; improved worker health environment | 1.700<br>2.137 | 1. 25<br>2. over 25 | 1. CT<br>2. CT | 2 |
| Printing | XYZXYZ | 9 million in annual sales | Uncontrolled discharges to waste water | 1. No cost/low cost<br>2. TCE recovery<br>3. Mineral spirits recovery | Elimination of discharges; recovery of TCE and mineral spirits | 1.63<br>2.44<br>3.176 | Over 25<br>6<br>7 | 1. CT<br>2. CT | 2 |
| Textiles | XYZXYZ | 20 million in annual sales | Uncontrolled waste water discharge contaminated with metal-based dyestuff | 1. Low cost/no cost actions<br>2. Installation of efficient dyer technology | Reduction in dyestuff discharges; reduction/reuse of waste water | 1.85<br>2.365 | 0.5<br>5.5 | 1. CT<br>2. CT | 2 |
| **Private Sector** | | | | | | | | | |
| Metals | XYZXYZ | 1.1 million tones/year | Environmental monitoring | Installation of monitoring network | Environmental compliance and "Total Quality Management" | 1.306 | No payback | Monitoring | 1 |

(1) The major environmental issues are identified with respect to the projects proposed to be undertaken. Each facility may also have additional environmental issues.
(2) Payback defined by value of reduced material and energy losses; other returns such as reduced product loss may also occur
(3) CT = Clean Technology PP = Pollution Prevention EOP = End of Pipe PO = Process Oriented TBD = To be Determined

# ANNEX V

# ANNOTATED OUTLINE OF THE STRATEGIC ACTION PROGRAMME

## 1. Background

The Coordinating Unit for the Mediterranean Action Plan of the United Nations Environment Programme, on behalf of the Contracting Parties to the Barcelona Convention and its Land Based Sources and Activities Protocol, requested GEF financial support for the formulation of a Strategic Action Programme for the protection of the Mediterranean Sea against degradation, particularly by pollution from land-based activities.

The SAP Programme will assist the Contracting Parties in meeting their obligations under the LBS Protocol and will be consistent with the relevant provisions of the Convention on the Law of the Sea; the Convention on Biological Diversity; the Agenda 21; the Barcelona Convention and its protocols on LBS and SPA and Biodiversity; and the Mediterranean Action Plan.

The SAP Programme will encompass a broad framework and timetable for the implementation of mechanisms and measures that will lead to the protection of the marine environment, including its biological resources and diversity, from harmful land-based activities.

The Transboundary Diagnostic Analysis and Regional reports on "Hot Spots", "Critical Habitats" and "Sensitive Areas" will involve identification and assessment of perceived issues and environmental problems and causes affecting the Mediterranean Sea.

## 2. Objectives

The general objective of the SAP Programme 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.

The specific activities of the SAP Programme are:

The establishment of priorities for action.

Formulation of principles, approaches, measures and timetable for implementation of the components of the SAP.

Preparation of a priority list for intervention and investments ("investment portfolio").

Analysis of expected baseline and additional actions needed to resolve each transboundary priority problems.

Elements and guidelines for the preparation of national programmes of action for the protection of the marine environment from land-based activities.

Identification of potential roles for Non Governmental Organizations in the implementation of the SAP Programme.

## 3. Principles and obligations

The SAP Programme will be based on the following principles:

The Contracting Parties of the Barcelona Convention shall:

a) Apply the precautionary principle. The precautionary approach should be applied through preventive and corrective measures based on existing knowledge resources and capacities at national level.

b) Take all appropriate measures to prevent or, where that is not practicable to reduce pollution, in particular through application of the best available techniques.

c) 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.

d) Undertake environmental impact assessment for proposed activities that are subject to an authorization by competent national authorities.

e) Apply the integrated approach for pollution control.

f) Commit themselves to promote the integrated management of the coastal zones.

g) Utilize the best available techniques and the best environmental practices and promote the application of, access to and transfer of environmentally sound technology, including clean production technologies, taking into account the social, economic and technological conditions.

h) Facilitate the public appropriate access to information on the environmental state and problems.

The new LBS Protocol means a change in the strategy selected for the protection of Mediterranean environment, these new strategy is based on sustainability and its purpose is to achieve integrated prevention and control of pollution arising from land based activities, in particular through application of the best available techniques and the best environmental practice.

## 4. Establishment of Priorities for Action

The establishment of priorities for action will be based on the results of the Transboundary Diagnostic Analysis and of the regional reports on "hot spots", "critical habitats" and "sensitive areas".

The establishment of priorities will also take in account the LBS Protocol which, in Annex I, says "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 waste water treatment and management".

In general priorities for action should be established taken in account three factors: degradation of marine environment including biological diversity; land-based origin; and transboundary nature (causes or effects).

## 5. Analysis of actions and targets

Analysis of expected baseline and additional actions needed to resolve each transboundary priority problems. These actions and targets would be national or regional and would be of legal, institutional and technical nature.

**Recommended approaches by categories of substances**

A. Domestic waste water.

B. Industrial waste water with biological oxygen demand (BOD) and total suspended solids (TSE).

C. Persistent Organic Pollutants (POP)
   - C.1. Priority 12.
   - C.2. Other POPs

D. Heavy metals

E. Oils (hydrocarbons)

F. Radioactive substances

G. Hazardous Wastes
   - G.1. PCBs wastes
   - G.2. Used lubricating oils
   - G.3. Other hazardous wastes

H. Solid Waste (litter)
   - H.1. Urban solid wastes
   - H.2. Other solid wastes

I. Physical alterations and destruction of habitats

Examples of actions which will be proposed:

At "hot spots", "Substitute, in the manufacture of paper pulp, the chlorine gas with other bleaching compounds which reduce the production of AOX";

At coastal zone, "By the year 2005, ensure that the medium and large coastal cities (>100.000 h) are the population connected to a sewer system and dispose all waste water in conformity with national regulation system".

At national level, "By the year 2000, development of national programmes of action for environmentally sound management of domestic waste water".

"Elaborate by the year 1999 and implement by the year 2000 national and/or regional programmes on the management of hazardous wastes and pilot plans for the following sectors: PCB; Used oils and oil/water mixtures: Biocides and phytosanitary products".

## 6. Institutional aspects

The general institutional aspects deal with:

The Authorization or Regulation System for point source discharges into the Protocol Area and releases into water or air that reach and may affect the Mediterranean Area. The System will differentiate between existing and new installations.

The provisions for systems of inspection to assess appliance with authorizations and regulations.

The establishment of monitoring programmes to evaluate the effectiveness of actions and measures implemented under this Programme.

## 7. Capacity Building

Capacity building proposals will be based on the priorities established and can be grouped into three categories:

Development of new institutions and strengthening existing environmental management institutions.

Monitoring, enforcement and information systems.

Application of the best available techniques and the best environmental practice.

## 8. Public participation

Increase decentralization and public participation in environmental management by:

i) gradually decentralizing the operational functions of environmental management of municipal and local levels;

ii) disclosing specific types of information;

iii) involving affected parties, 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.

iv) identification of potential roles for Non Governmental Organizations in the implementation of the SAP Programme.

## 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".

We propose to extend this obligation to prepare such reports in the SAP Programme.

**10. Resource Mobilization**

**11. Preparation of a priority list for intervention and investments ("investment portfolio").**

**12. Timetable**

The three chapters (Resource mobilization, investments portfolio and timetable) will be drafted with the results of the Transboundary Diagnostic Analysis.

**13. National Programmes of Action**

The SAP Programme will include elements and guidelines for the preparation of national programmes of action for the protection of the marine environment from land-based activities.

# ANNEX VI

# ANNOTATED OUTLINE OF THE TRANSBOUNDARY DIAGNOSTIC ANALYSIS

## Description of the Task

Aim of the Transboundary Diagnostic Analysis (TDA) is to:

- identify the perceived issues and environmental problems affecting the Mediterranean Sea and associated with land-based activities, and assess their relative magnitude and importance;
- review the data and information relating to transboundary issues such as shared fisheries resources, regionally and globally important biodiversity, land-based activities and water quality in the Mediterranean region;
- identify causes of the issues and problems and, whenever possible, quantify them by source and sector;
- identify, where possible, geographic sites of impact and/or the status of the affected resources;
- assess the extent to which individual issues and problems are national and/or transboundary in nature, and the extent to which the cumulative effect on the Mediterranean Sea of national issues and problems might itself be considered transboundary;
- assess and quantify economic costs or losses associated with the identified issues and problems:
- propose interventions (national or regional) required to address the problems and identify, alternative courses of action, and assess, as accurately as possible, their costs: and
- identify and assess the baseline and incremental cost of the issues and problems to be addressed through the resultant GEF project.

The TDA will provide the basis for determining the nature of interventions (national or regional) required to address the problems and issues resulting from land-based activities and will thus be fundamental to the successful development of the Strategic Action Programme.

Together with the regional reports on:

- "Pollution hot spots in the Mediterranean Sea region";
- "Sensitive areas in the Mediterranean Sea"; and
- "Critical habitats and ecosystems, and endangered species in the Mediterranean Sea"

the TDA will provide the basis for determining priority actions within the framework of the Strategic Action Programme.

## Method of Work and Deadlines

The TDA will be prepared on the basis of existing data and information collected through the past activities of the Mediterranean Action Plan (MAP) and other regional and national activities, projects and programmes in the Mediterranean. Whenever possible gaps in the information should be identified and proposals made to fill in such gaps.

The TDA will encompass the findings of the GEF funded regional reports on "Pollution hot spots", "Sensitive Areas" and "Critical Habitats", and will be prepared in close collaboration with the experts preparing these reports.

Segments of TDA dealing with the cost analyses and an evaluation of the oil related issues will be prepared in close collaboration with the World Bank and METAP specialists.

The TDA will be prepared in close collaboration with the National Coordinators for the Strategic Action Plan (SAP), and where they are formed with the National Inter-Ministerial Working Groups.

The aims, method of work, responsibilities and deadlines for each of the sections and subsections of the TDA are given in respective sections bellow. Main deadlines in the preparation of the TDA are as follows:

- December 1996 - draft Outline/Framework of the TDA prepared, discussed at the Meeting of Consultants and revised, as appropriate;
- January 1997 - Outline/Framework finalised of the TDA on the basis of the comments by the Steering Group and the *Ad hoc* Consultation;
- May 1997 - First draft of the TDA prepared;
- June 1997 - Meeting of Government Designated Experts to examine the first draft of the TDA and propose amendments;
- July 1997 - Second draft of the TDA prepared;
- September 1997 - Meeting of National Coordinators for SAP (second draft of the TDA will be submitted as the information document);
- November 1997 - Meeting of the Contracting Parties of the Barcelona Convention - final draft of the TDA submitted for adoption; and
- December 1997 - Donors Conference - TDA to be presented.

The TDA document will have following three sections:

1. Perceived Major Problems;
2. Specific Actions Proposed for Perceived Problems; and
3. Relevant Data and Information and Detailed Analysis of Problems.

## 1. PERCEIVED MAJOR PROBLEMS

### Description of the Task

This section is in a way the executive summary of the TDA.

Aim of this section is to:

- identify perceived major problems;
- identify and analyse the main causes of each problem; and
- propose actions to alleviate each perceived problem.

This section will be completed on the basis of data, information and analysis which will be presented in the second and third sections of the TDA.

The following preliminary proposal of the perceived major problems will be amended with the each new draft of the TDA:

- degradation of the coastal zone due to unsustainable development;
- inadequate coastal zone management;
- degradation of the coastal and marine environment due to pollution;
- inadequate protection of marine and coastal resources from maritime accidents;
- degradation due to the exploitation of nonliving marine resources;
- unsustainable exploitation of living marine resources;
- loss and/or degradation of habitats supporting living resources of national and transboundary importance;
- loss or imminent loss of endangered species; and
- introduction and geographic spread and expansion of populations of nonindigenous species.

### Method of Work and Deadlines

Above proposed preliminary list of perceived major problems should be considered in MAP and agreed upon by 30 Nov. 1996.

Mr Jeftic will be responsible to prepare drafts and final text of this section with the same deadlines as for the entire TDA.

Mr Civili will be responsible to organise discussions in MAP and communicate with Regional Activity Centres (RACs) regarding the comments on the text.

## 2. SPECIFIC ACTIONS PROPOSED FOR EACH IDENTIFIED PROBLEM

### Description of the Task

Aim of this section is to present for the each of the proposed actions:

- elaboration of the problem;
- stakeholders;
- uncertainties;
- proposed actions with associated costs and environmental impacts; and
- products and milestones.

Proposed actions will be of various kind, covering:

- institutional aspects;
- legal and economic instruments;
- integrated planning and management; and
- pollution control and elimination.

Main data and information on which proposed actions will be based will be presented in the third section of the TDA.

### Method of Work and Deadlines

Elements and information for the preparation of this section should be sent to MEDU in accordance with the responsibilities and deadlines stated bellow in the third section.

Particular effort will be made to work together with the national coordinators for this work and other representatives of Mediterranean countries, as well as representatives of the GEF Secretariat, the World Bank an the UNDP.

Differentiation between transboundary and national problems and actions and between incremental and baseline costs will be in the focus of the work for the preparation of this document.

Mr Jeftic will be responsible to prepare drafts and final text of this section. Work on the preparation of this section will have same deadlines as for the entire TDA.

# 3. RELEVANT DATA AND INFORMATION AND DETAILED ANALYSIS OF PROBLEMS

## Description of the Task

In this third (last) section of the TDA, data and information will be presented which will serve as a base for analysis and for the preparation of proposals for actions which will be presented in the second section of the TDA. Topics to be considered are:

3.1. Sources of pollution of the Mediterranean Sea and pollution parameters to be considered;
3.2. Pollution hot spots in the Mediterranean Sea region;
3.3. Sensitive areas in the Mediterranean Sea;
3.4. Tourism;
3.5. Living marine resources;
3.6. Critical habitats and ecosystems, and endangered species in the Mediterranean Sea;
3.7 Coastal zone management and planning;
3.8 Institutional arrangements in the Mediterranean Countries; and
3.9. Public participation.

## 3.1. Sources of Pollution of the Mediterranean Sea and Pollution Parameters to be Considered

### Description of the Task

Aim of this section is to assess the main sources of pollution of the Mediterranean Sea and present data for each main source of pollution and for each pollution parameter which was considered.

Following major sources of pollution will be considered:

3.1.1. Rivers:
3.1.2. Coastal cities and coastal population:

3.1.3. Ports;
3.1.4. Maritime transport;
3.1.5. Industrial pollution from coastal installations;
3.1.6. Agricultural run-off;
3.1.7. Airborne pollution; and
3.1.8. Exploitation of seabed and its subsoils.

Each pollution parameter listed below should be considered for each of the 8 pollution sources listed above. Whenever appropriate, pollution parameter should be selected to be analysed in accordance with the description of the task for each of the pollution sources.

Pollution parameters to be considered in assessing sources of pollution are:

- biological oxygen demand/chemical oxygen demand;
- nutrients (nitrogen and phosphorus);
- total suspended solids;
- persistent organic pollutants;
- oils (hydrocarbons);
- heavy metals;
- radioactive substances;
- litter; and
- microorganisms (faecal coliforms, *E. coli*).

**Method of Work and Deadlines**

Whenever appropriate for a pollution source a questionnaire will be prepared with all applicable pollution parameters. Such questionnaires will be addressed to national coordinators for SAP and national experts.

Mr Kamizoulis will be responsible for the preparation of questionnaires for coastal cities and industrial pollution, in cooperation with Mr Jeftic, Mr Gabrielides and Mr Civili.

Questionnaires should be prepared by 30 Nov. 1996.

### 3.1.1. Rivers

#### Description of the Task

Aim of this section is to:

- assess the load of contaminants (particularly nutrients, organic pollutants and suspended solids) reaching the Mediterranean Sea from major rivers (Ebro, Nile, Po and Rhone) and selected other rivers;
- assess which part of the load is of the national and which of the transboundary nature;
- identify, where possible, geographic sites of impact;
- identify perceived issues and problems affecting the Mediterranean Sea related to riverine inputs and assess their relative magnitude and importance; and
- propose interventions (taking into account ongoing responses) at the national and regional level, required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be the assessment, with the assistance of an expert, of the all type of costs or losses associated with the identified problems and their solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

Every major river and every of about 30 additional rivers should be considered and data collected (or load estimated) for each applicable pollution parameter listed in section 3.1. above.

#### Method of Work and Deadlines

In the collection of relevant data and information particular attention should be given to close cooperation with relevant countries and their experts, in order to assure data compatibility/intercalibration.
In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

This work will be carried-out by the consultant and Mr Civili will be responsible for the communication with the consultant.

Data and information should be submitted to MEDU by 15 March 1997.

### 3.1.2. Coastal Cities and Coastal Population

#### Description of the Task

Aim of this section is to:

- assess the load of contaminants (particularly nutrients, microbial pollution, organic pollutants and oil) reaching the Mediterranean Sea from coastal population;
- assess which part of the load from cities is of the national and which of the transboundary nature;
- identify perceived issues and problems related to cities, including coastal urban agglomerations, affecting the Mediterranean Sea and assess their relative magnitude and importance;
- identify, where possible, geographic sites of impact; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify, as accurately as possible, alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of the all type of costs or losses associated with the identified problems and their solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

Every coastal city with the population above 100,000 (if necessary selected cities with the population below 100,000 will be also included in the analysis) should be considered and data collected (or load estimated) for each applicable pollution parameter listed in section 3.1 above. Information on the status of collection, treatment and disposal of sewage for each of these cities will be also collected.

For cities and settlements with the population bellow 100,000 an assessment of pollution loads will be made in order to estimate regional loads for the whole Mediterranean.

#### Method of Work and Deadlines

The work for the cities above 100,000 will be done by pollution hot spots task team led by Mr Kamizoulis, who will be responsible for communication with experts and countries.

Particular attention should be given to cooperative work with national experts in order to assure data compatibility/intercalibration.

In preparing required cost and environmental economic analyses the work should be carried-out in close collaboration with the World Bank and METAP specialists. The World Bank could be responsible for financial analysis and could also support financially this work due to its relevance to METAP.

Data and information should be submitted to MEDU by 15 April 1997.

### 3.1.3. Ports

#### Description of the Task

Aim of this section is to:

- assess the load of contaminants (particularly oil and organic pollutants) entering the Mediterranean Sea from activities in ports;
- assess which part of the load from ports is of the national and which of the transboundary nature;
- identify, where possible, geographic sites of impact;
- identify perceived issues and problems affecting the Mediterranean Sea related to ports and assess their relative magnitude and importance; and
- propose interventions (taking into account ongoing responses) at the national or regional levels required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all type of costs or losses associated with the identified problems and their solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

Main ports and harbours will be considered for each applicable pollution parameter listed in section 3.1 above.

#### Method of Work and Deadlines

Work under this section will be carried-out in cooperation by REMPEC, in cooperation with the GEF PDF-B activity on oil pollution in the Mediterranean.

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with World Bank and METAP specialists.

Mr Civili will be responsible for the communication with the GEF PDF-B activity and REMPEC.

Deadline for submission of data and information should be 10 March 1997.

### 3.1.4. Maritime Transport

#### Description of the Task

Aim of this section is to:

- assess the load of contaminants (particularly oil and organic pollutants) entering the Mediterranean Sea from maritime transport;
- assess which part of the load from maritime transport is of the national and which of the transboundary nature;
- identify, where possible, geographic sites of impact;
- identify perceived issues and problems affecting the Mediterranean Sea related to maritime transport and assess their relative magnitude and importance: and
- propose interventions (taking into account ongoing responses) at the national or regional levels required to address the problems and identify, alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all type of costs or losses associated with the identified problems and their solutions. as well as identification of possible options to address the problems and assessment of the costs of these options.

Maritime transport will be considered for each applicable pollution parameter listed in section 3.1 above.

#### Method of Work and Deadlines

Work under this section will be carried-out in cooperation by REMPEC, in cooperation with the GEF PDF-B activity on oil pollution in the Mediterranean.

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with World Bank and METAP specialists.

Mr Civili will be responsible for the communication with the GEF PDF-B activity and REMPEC.

Deadline for submission of data and information should be 10 March 1997.

### 3.1.5. Industrial Pollution

#### Description of the Task

Aim of this section is to:

- assess the load of contaminants (particularly persistent organic pollutants. oils and petroleum hydrocarbons, and heavy metals) entering the Mediterranean Sea due to industrial activities;
- assess which part of the load from industrial activities is of the national and which of the transboundary nature:
- identify, where possible, geographic sites of impact;
- identify perceived issues and problems related to industrial activities affecting the Mediterranean Sea and assess their relative magnitude and importance: and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action. and assess. as accurately as possible, their costs (social. economic and environmental).

Integral part of the work should be assessment. as accurately as possible, with the assistance of an expert, of all type of costs or losses associated with the identified problems and their solutions. as well as identification of possible options to address the problems and assessment of the costs of these options.

In particular. options which can provide cost savings to industry while reducing pollutant outputs should be identified when possible (e.g. energy efficiency, recyclable feedstocks. reduced raw materials throughout.

Industrial pollution should be considered for the major industrial facility/factory for each of applicable pollution parameters listed in section 3.1.

**Method of Work and Deadlines**

This work will be done by pollution hot spots task team. Mr Kamizoulis will be responsible for carrying-out the work and for communication with experts and countries.

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists. Cooperation and joint work with the World Bank on this subject should be ensured due to its relevance to the METAP. World Bank could support financially this activity through METAP. Segment on oil should be carried-out jointly with the GEF PDF-B activity on oil pollution in the Mediterranean.

Deadline for submission to MEDU of data and information should be 15 April 1997.

### 3.1.6. Agricultural Run-off

**Description of the Task**

Aim of this section is to:

- assess the load of contaminants (particularly nutrients and persistent organic pollutants) entering the Mediterranean Sea due to agricultural activities;
- assess which part of the load from agricultural activities is of the national and which of the transboundary nature;
- identify, where possible, geographic sites of impact;
- identify perceived issues and problems related to agricultural activities affecting the Mediterranean Sea and assess their relative magnitude and importance; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all type of costs or losses associated with the identified problems and their

solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

Assessment of the impact and associated costs/benefits of more sustainable upstream agricultural activities will receive particular attention.

Agricultural run-off as a diffuse source of pollution of the Mediterranean Sea should be considered for each of the applicable pollution parameters listed in the section 3.1 above.

**Method of Work and Deadlines**

FAO will be asked to prepare relevant study, if necessary with the assistance of the consultant.

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

Mr Gabrielides will be responsible for the communication with FAO.

Deadline for submission of the report will be 10 March 1997.

### 3.1.7. Airborne Pollution

**Description of the Task**

Aim of this section is to:

- assess the load of contaminants (particularly nutrients, persistent organic pollutants and heavy metals) entering the Mediterranean Sea through air:
- assess which part of the load reaching the Mediterranean Sea through air is of the national and which of the transboundary nature:
- identify, where possible, geographic sites of impact:
- identify perceived issues and problems related to airborne pollution affecting the Mediterranean Sea and assess their relative magnitude and importance: and

- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all type of costs or losses associated with the identified problems and their solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

Airborne pollution should be considered for each of the applicable pollution parameters listed in section 3.1. above.

**Method of Work and Deadlines**

WMO will be asked to prepare relevant study, if necessary with the assistance of the consultant. In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

Mr Soudine will be responsible for the preparation of the report.

Mr Civili will be responsible for the communication with Mr Soudine.

Deadline for the submission of the report will be 10 March 1997.

### 3.1.8. Exploitation of Seabed and its Subsoils

**Description of the Task**

Aim of this section is to:

- assess the load of contaminants (particularly, persistent organic pollutants, oils and petroleum hydrocarbons, and heavy metals) entering the Mediterranean Sea due to the exploitation of seabed and its subsoils;
- assess which part of the load from the exploitation of seabed and its subsoils is of the national and which of the transboundary nature;
- identify, where possible, geographic sites of impact;

- identify perceived issues and problems related to the exploitation of seabed and its subsoils affecting the Mediterranean Sea and assess their relative magnitude and importance; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all type of costs or losses associated with the identified problems and their solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

Main seabed exploitation sites should be considered for each of the applicable pollution parameter listed in section 3.1. above.

**Method of Work and Deadlines**

This work will be carried-out by UNEP/IMO Regional Marine Pollution Emergency Response Centre (REMPEC) of the Mediterranean Action Plan (MAP).

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

Mr Civili will be responsible for the communication with REMPEC.

Deadline for the submission of the report will be 10 March 1997.

### 3.2. Pollution Hot Spots in the Mediterranean Sea Region

**Description of the Task**

Aim of this section is to:

- identify potential Mediterranean pollution hot spots . based on data and information collected for the entire section 3.1:
- prepare a list of "Regional Priority Pollution hot spots" which should have regional priority for intervention in order to control or eliminate pollution at such spots:

- identify, where possible, geographic sites of impact;
- assess relative importance of each of the listed pollution hot spots;
- assess which part of the pollution load at each of the pollution hot spots is of the national and which of the transboundary nature; and
- propose interventions (taking into account ongoing responses) at the national and regional level, with associated cost estimates, for each of the pollution hot spots, and identify, alternative courses of action, and assess, as accurately as possible, their costs.

**Method of Work and Deadlines**

This work will be carried-out for sections on cities (3.1.3 and 3.1.4.), industrial pollution (3.1.7.) and sensitive areas in the Mediterranean Sea (3.5) by pollution hot spots task team which will be led by Mr Kamizoulis. Detailed programme of work for sections 3.1.3; 3.1.4; 3.1.7 and 3.5, including the description of the task, with the method of work and deadlines, will be prepared by the pollution hot spots task team. The work will be firstly done on the country level. After the analysis of data and information on the country level, the regional analysis will be carried-out.

For the other parts of the section 3.1. the determination of pollution hot spots will be carried-out by institutions/persons responsible for respective sections, in consultation with Mr Jeftic.

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

Work should be completed by 15 April 1997.

### 3.3. Sensitive Areas in the Mediterranean Sea

**Description of the Task**

Aim of this section is to:

- identify estuarine and coastal areas of natural and socio-economic value in the Mediterranean Sea which are particularly sensitive to damage from land-based activities:

- identify the perceived issues and problems relevant to sensitive areas and assess their relative magnitude and importance;
- review the data and information relating to transboundary issues and associated with sensitive areas;
- assess the extent to which individual issues and problems are national and/or transboundary in nature, and the extent to which the cumulative effect on the Mediterranean Sea of national issues and problems might itself be considered transboundary;
- assess economic costs or losses associated with the identified issues and problems; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all type of costs or losses associated with the identified problems and their solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

**Method of Work and Deadlines**

Mr Kamizoulis and the pollution hot spots task team will be responsible for the preparation of the report associated with the pollution hot spots areas.

Report associated with the biodiversity will be dealt with by the SPA/RAC.

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

Report should be ready by 15 April 1997.

### 3.4. Tourism

**Description of the Task**

Aim of this section is to:

- identify the perceived issues and problems relevant to tourism (including camping, marinas, pleasure boats), associated with land-based activities, and assess their relative magnitude and importance;

- identify causes of the issues and problems and, whenever possible, quantify them by source;
- identify, where possible, geographic sites of impact and/or the nature of the affected resources;
- assess the extent to which individual issues and problems are national and/or transboundary in nature, and the extent to which the cumulative effect on the Mediterranean Sea of national issues and problems might itself be considered transboundary;
- assess economic costs or losses associated with the identified issues and problems; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all type of costs or losses associated with the identified problems and their solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

**Method of Work and Deadlines**

This work will be carried-out by Blue Plan Regional Activity Centre (BP/RAC) of MAP.

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

Mr Civili will be responsible for the communication with BP/RAC.

### 3.5. Living Marine Resources

**Description of the Task**

Aim of this section is to:

- identify the perceived issues and problems relevant to living marine resources (fishery and aquaculture), associated with land-based activities, and assess their relative magnitude and importance;

- assess living marine resources, including shared fish stocks, regarding over-exploitation, pollution, and transboundary issues;
- identify causes of the issues and problems and, whenever possible, quantify them by source;
- identify, where possible, geographic sites of impact and/or the nature of the affected resources;
- assess the extent to which individual issues and problems are national and/or transboundary in nature, and the extent to which the cumulative effect on the Mediterranean Sea of national issues and problems might itself be considered transboundary;
- assess economic costs or losses associated with the identified issues and problems; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all type costs or losses associated with the identified problems and their solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

**Method of Work and Deadlines**

This work will be carried-out by FAO.

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

Mr Gabrielides will be responsible for the communication with FAO.

Information should be submitted by 10 March 1997.

### 3.6. Critical Habitats and Ecosystems. and Endangered Species in the Mediterranean Sea

**Description of the Task**

Aim of this section is to:

- identify the perceived issues and problems relevant to critical habitats and ecosystems and to endangered species in the Mediterranean Sea

(including regionally and globally important biodiversity), and assess their relative magnitude and importance;

- identify causes of the issues and problems and, whenever possible, quantify them by source;
- identify, where possible, geographic sites of impact and/or the nature of the affected resources;
- identify areas with ecosystems and habitat conservation value, as well as sustainable development/human use interest which are particularly sensitive to damage and which should be protected and managed;
- assess the extent to which individual issues and problems are national and/or transboundary in nature, and the extent to which the cumulative effect on the Mediterranean Sea of national issues and problems might itself be considered transboundary;
- assess economic costs or losses associated with the identified issues and problems; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all type of costs or losses associated with the identified problems and their solutions. as well as identification of possible options to address the problems and assessment of the costs of these options.

**Method of Work and Deadlines**

Specially Protected Areas Regional Activity Centre (SPA/RAC) of MAP will be responsible for the preparation of the report.

In preparing required cost and environmental economic analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

Mr Civili will be responsible for the communication with SPA/RAC.

Report should be submitted to MEDU by 10 March 1997.

### 3.7. Coastal Zone Management and Planning

#### Description of the Task

Aim of this section is to:

- identify the perceived issues and problems relevant to coastal zone management and planning affecting the Mediterranean Sea, and assess their relative magnitude and importance;
- review the data and information relating to transboundary issues and associated with coastal zone management and planning;
- identify causes of the issues and problems and, whenever possible, quantify them by source;
- identify, where possible, geographic sites of impact and/or the nature of the affected resources;
- assess the extent to which individual issues and problems are national and/or transboundary in nature, and the extent to which the cumulative effect on the Mediterranean Sea of national issues and problems might itself be considered transboundary;
- assess economic costs or losses associated with the identified issues and problems; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

Integral part of the work should be assessment, with the assistance of an expert, of all types of costs or losses associated with the identified problems and their solutions, as well as identification of possible options to address the problems and assessment of the costs of these options.

#### Method of Work and Deadlines

Priority Action Programme Regional Activity Centre (PAP/RAC) of MAP will be responsible for this work. In preparing required cost analyses the work should be carried-out in collaboration with the World Bank and METAP specialists.

Mr Civili will be responsible for the communication with PAP RAC.

Report should be submitted to MEDU by 10 March 1997.

## 3.8. Institutional Arrangements in the Mediterranean Countries

### Description of the Task

Aim of this section is to:

- identify the perceived issues and problems related to institutional arrangements in the Mediterranean Countries and associated with land-based activities, and assess their relative magnitude and importance;
- analyse existing institutional arrangements, including regional and subregional arrangements and interurban organisations;
- assess the extent to which individual issues and problems are national and/or transboundary in nature, and the extent to which the cumulative effect on the Mediterranean Sea of national issues and problems might itself be considered transboundary;
- assess economic costs or losses associated with the identified issues and problems; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

This section will deal with the institutional arrangements at the regional level while the national level will be covered in each of the sections.

### Method of Work and Deadlines

The Mediterranean Coordination Unit will take responsibility for this work.

Cooperation and joint work with UNDP on this subject should be ensured in view of their role in Capacity Building in METAP and GEF. UNDP could support financially this activity.

Mr Civili will be responsible for the coordination of this work.

Report should be submitted by 10 March 1997.

### 3.9. Public Participation

#### Description of the Task

Aim of this section is to:

- identify the perceived issues and problems related to public participation in the Mediterranean Countries and associated with land-based activities, and assess their relative magnitude and importance;
- assess the extent to which individual issues and problems are national and/or transboundary in nature, and the extent to which the cumulative effect on the Mediterranean Sea of national issues and problems might itself be considered transboundary;
- assess economic costs or losses associated with the identified issues and problems; and
- propose interventions (taking into account ongoing responses) at the national and regional level required to address the problems and identify alternative courses of action, and assess, as accurately as possible, their costs (social, economic and environmental).

#### Method of Work and Deadlines

The Mediterranean Coordination Unit will take responsibility for this work.

Mr Civili will be responsible for the coordination of this work.

Report should be submitted by 10 March 1997.

# ANNEX VII

# GUIDELINES FOR THE PREPARATION OF THE TRANSBOUNDARY DIAGNOSTIC ANALYSIS AND THE STRATEGIC ACTION PROGRAMME

## Transboundary Diagnostic Analysis

The following examples are provided as guidance to the nature of the contents of both the Transboundary Diagnostic Analysis and the Strategic Action Programme. The SAP must be based on the findings of the TDA, which in the case of the Mediterranean includes an analysis of Hot Spots and Sensitive Areas.

| ISSUE/PROBLEM | LOCATION | CAUSE | | ACTION |
|---|---|---|---|---|
| | | PROXIMATE | ULTIMATE | |
| **Algal Blooms** | N. Adriatic | Nutrients (N & P) | | |
| | | Po | Agriculture | Economic Instruments |
| | | Other Sources | Sewage | Treatment Plants |
| **"Pollution"** | Kastela Bay | | | |
| Anoxia | | Nutrients | Agriculture Sewage | Economic Instruments W.W. Treatment |
| Human Health | | Heavy Metals | 'Industry' | Demonstration Plants; Environmental Standards etc. |
| Species change | | POP's | | |

In the first example "Algal Blooms", a specific issue is chosen which is a recognized problem from the perspective of the tourist industry. Algal blooms, and unsightly 'foam' detracts from the aesthetic value of beaches and bathing waters. The location in this case is the Northern Adriatic which is a transboundary body of water since it is surrounded by the coasts of Italy, Slovenia and Croatia. The proximate cause of the problem is enhanced nutrient flux from land to sea as a consequence of human actions. The ultimate cause(s), or the sources of these nutrients may be either Agricultural run-off, or sewage discharge, or both. The source of the nutrients includes the Po River and other point and diffuse sources of input.

The purpose of the TDA is to scale the relative importance of the sources and causes, both proximate and ultimate. In this case, nutrient inputs are dominated by inputs from the Po River, hence addressing other sources will be less effective than addressing the inputs from the Po. Similarly the ultimate causes need to be evaluated, if the bulk of nutrients are derived from sewage then addressing agricultural inputs will be less effective in solving the problem.

The final column of the TDA outlines possible actions but does not indicate who will undertake these actions, where, when or how these actions should be initiated and executed, the costs of the actions or the time frame within which they are to be completed. These are components of the SAP rather than the TDA.

The second example involves a 'generic', unspecific problem "pollution" in Kastela Bay in Croatia. This pollution takes many forms and involves many sources and different substances. A generic problem or issue cannot be addressed as easily as a more specific one hence the nutrient inputs (pollution) result in algal blooms and anoxia of bottom waters with associated fish kills. Identifying the problem and solution is easier if the "pollution" problem is listed as specific issues: Fish kills/anoxia; contamination of seafood or human health risks; changes in species composition, etc. Each specific issue or problem can then be examined in terms of the proximate and ultimate cause and a potential solution or alternative solutions identified.

The optimum approach is to identify those actions or solutions that achieve benefits at a number of levels (local, national, regional and global) or solve a number of issues or problems simultaneously.

Two other points should be raised in relation to these examples. Firstly the transboundary nature of the issues or problems:

- the causes of the identified issue or problem may be national or themselves transboundary, thus the catchment of the Po River is entirely within the National Boundaries of Italy hence the cause of the Transboundary Problem of algal blooms in the Northern Adriatic is national, but the impact is transboundary. In the case of the Danube nutrient inputs to the Black Sea both the cause (source) and the impact (eutrophication) are Transboundary.

- the second example is one of a problem that is purely national both in terms of its causes and its impacts.

However the second example could be argued to also have transboundary impacts since changes to coastal ecosystems that result in a change from net sink of Carbon Dioxide to net source of atmospheric carbon dioxide are transboundary in terms of their effects on global atmosphere and climate.

The second point concerns the maximization of environmental benefits. An action which results in local or national benefits in terms of providing the solution to one issue or problem will be unlikely to be a priority at a sub-regional or regional level since the scale or extent of the improvement of environmental quality will be limited in both time and space. An action which solves local problems, and simultaneously results in regional and/or global environmental benefits will generally be of higher priority since the cumulative 'value' of the benefits will exceed the 'value' of the action with solely local effect.

## Strategic Action Programme

The Transboundary Diagnostic Analysis provides the justification for the actions proposed in the SAP. The TDA identifies the issues and the problems, identifies and quantifies the causes, and provides the list of possible actions to address the major issues and problems.

The SAP sets targets that may be very detailed for example in terms of reducing the amount of pollutant to X by year 10 say. In many instances these targets cannot be set this precisely hence an intermediate target might be to: Agree to establish 'standards' by year X and agree on a schedule of subsequent compliance.

The SAP must contain clear statements of **where** one wishes to be - in terms of environmental quality - in a specified time, i.e. by **when.**

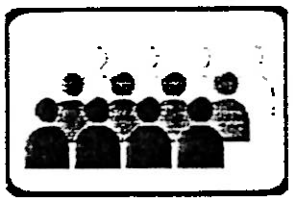
In addition, the SAP must clearly spell out **how** it is intended to arrive at that point. The **how** should include details of required economic or legal instruments as facilitation mechanisms but these alone will be inadequate. In addition, the nature of required actions (**what**) must be spelled out together with a clear statement as to **who** is required to undertake the action.

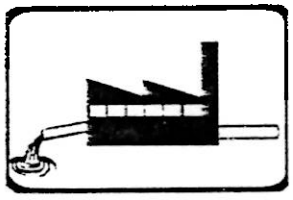
The justification of the recommended actions (the **what** and **how**) is provided through the economic and financial analysis that should spell out as accurately as possible:

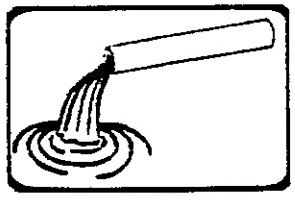
- the **costs** of action (and inaction) and,
- the benefits of action (and inaction) i.e. some measure of the extent to which economic or human welfare benefits could be related to the economic costs or required inputs or actions.

# ANNEX VIII

# OUTLINE OF THE REPORT ON HOT SPOTS







# IDENTIFICATION OF POLLUTION

## HOT SPOTS AND SENSITIVE AREAS

## TABLE OF CONTENTS

# 1. OVERVIEW ON THE IDENTIFICATION OF POLLUTION "HOT SPOTS" AND "SENSITIVE AREAS"

## 1.1 Aim

Within the context of the amended Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities, regional action plans and programmes should be elaborated for the elimination of pollution deriving from land-based sources and activities. For the implementation of the above provision, a Strategic Action Programme (SAP) for the Mediterranean Sea will be formulated. The SAP will also involve the **identification and assessment of** problems and causes including **pollution "hot spots" and "sensitive areas"**.

The aim of the above task is to:

- identify potential Mediterranean pollution "Hot spots" based on the assessment of contaminants reaching the Mediterranean Sea (a) from coastal cities or urban coastal agglomerates with population above 100,000 and some other selected coastal cities and (b) due to industrial activities;
- identify areas in the Mediterranean Sea which are particularly sensitive to damage from land-based activities;
- prepare a list of "Regional Priority Hot Spots" which should have regional priority for intervention in order to control or eliminate pollution at hot spots and assess the relative importance of each of the listed "Hot Spots";
- propose interventions (national or regional) required to address the problems and identify, whenever possible, alternative courses of action and assess, whenever possible, their costs.

## 1.2 Description of the Task

The task consists of the following:

1.2.1 **Preliminary identification of potential Mediterranean hot spots** in the country, based on existing data, surveys, etc. by using the professional expertise on this issue. As an indication, the number of hot spots proposed could be related to (a) coastal cities and urban coastal agglomerates with considerable population (e.g. more than 100,000 taking also into consideration the size of each individual country) and (b) to main industrial facilities discharging directly into the Mediterranean.

Then, in order to **confirm that these proposed potentially hot spots, are really hot spots**, information will be required on the following:

(a) Data on load, collection, treatment and disposal of the coastal cities wastewater and for each (whenever possible) of the characteristics according to the questionnaire provided.

(b) Data on industrial pollution for every major industrial facility, discharging directly into the sea, for each of the parameters according to the questionnaire provided. If, for certain reasons, technical data are not available, then data on the activity of the industry/activity must be provided (raw materials consumed or products manufactured).

1.2.2 Information and, if possible, **data on sensitive areas** will be required on the same basis as for hot spots.

## 2. HOT SPOTS DEFINITION AND CRITERIA

### 2.1 Hot Spots

(a) **Point sources** on the coast of the Mediterranean Sea which potentially **affect** human health, ecosystems, biodiversity, sustainability or economy in a significant manner. They are the **main points where high levels of pollution loads** originating from domestic or industrial sources are being **discharged**;

(b) Defined **coastal areas** where the **coastal marine environment is subject to pollution** from one or more point or diffused sources on the coast of the Mediterranean which potentially **affect** human health in a significant manner, ecosystems, biodiversity, sustainability or economy.

### 2.2 Hot Spots Indicators (primary)

- BOD, COD
- nutrients (phosphorus, nitrogen)
- total suspended solids
- oil (petroleum hydrocarbons)
- heavy metals
- persistent organic pollutants
- radioactive substances (whenever applicable)
- litter
- microorganisms (faecal coliforms, *E.coli*)

### 2.3 Evaluation of Priority Hot Spots

A ranking system from 1-6 must be followed to show the severity of each of the effects on the identified hot spots.

It will be required to prepare a table on the priority hot spots by evaluating them using the following criteria:

- The risk exerted by the point sources with effects on:
  - public health
  - drinking water quality
  - recreation
  - other beneficial uses
  - aquatic life (including biodiversity)
  - economy and welfare (including marine resources of economic value).

should be graded as follows:

1 for no effects
2 for slight effects
3 for moderate effects
4 for major effects
5 for severe effects
6 for extreme effects

- In order to weigh the risk in an equal manner, a multiplier depending on the importance of the effects on the several issues should be applied to the grades:

1.0 for public health
0.9 for drinking water quality
0.8 for recreation
0.8 other beneficial uses
0.7 for aquatic life including biodiversity
0.7 economy and welfare including marine resources of economic value

- *Note*: Taking into account that absolute grading levels may differ for each country and for each evaluation, there will be a need for a relative index (0-100).

## 2.4 Transboundary effects

- The transboundary effects of the hot spots will be mentioned in a separate column. These possible transboundary effects would involve the following:

- Fisheries
- Biodiversity
- Reduction of regional value of Mediterranean tourism
- Public Health
- Habitats.

## 2.5 Nature of Investment and Economic Costs

The identification of the hot spots is necessarily linked to the identification of the causes and the problems that led to this critical situation. Therefore it is essential that a determination of the nature of investment, based on the causes identified and the intervention to be followed are required and a preliminary estimated financial requirement be proposed, taking into consideration the costs involved for similar projects in the particular country.

## 2.6 Example

In order to facilitate the whole procedure, an example of the table to be prepared, related to the hot spots in the Black sea, follows.

EXAMPLE

| Country | Name | Type | Public Health | Drinking Water Quality | Aquatic Life | Recreation | Other Beneficial Uses | Welfare and Economy | WEIGHTED TOTAL | Relative Importance Index | Nature of Investment | Transboundary Aspect(s) | Preliminary Estimated Financial Requirement |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bulgaria | Rosenets | Oil Terminal | 2 | 2 | 3 | 4 | 5 | 6 | 17.3 | 100 | WWTP Construction | F, H, A | $800,000 |
| Bulgaria | Varna | Port | 3 | 1 | 3 | 5 | 4 | 5 | 16.6 | 96 | WWTP Extension | F, H, L, A | $700,000 |
| Bulgaria | Burgaz | Port | 3 | 1 | 3 | 5 | 4 | 5 | 16.6 | 96 | WWTP Extension | F, H, L, A | $2,200,000 |
| Bulgaria | Asparuhopvo | Domestic | 2 | 2 | 3 | 5 | 4 | 5 | 16.5 | 95 | WWTP Extension | F, H, B, L, P | $7,000,000 |
| Bulgaria | Balchik | Domestic | 2 | 2 | 3 | 5 | 4 | 5 | 16.5 | 95 | WWTP Extension | F, H, B, L, P | $8,000,000 |
| Bulgaria | Sodi | Soda Ash | 2 | 4 | 3 | 2 | 4 | 5 | 16.0 | 92 | WWTP Construction | H, B, L | $1,250,000 |
| Bulgaria | Tsaravo | Domestic | 2 | 2 | 3 | 4 | 4 | 5 | 15.8 | 91 | WWTP Extension | F, H, B, L, P | $8,000,000 |
| Bulgaria | Neftochim | Refinery | 2 | 2 | 3 | 3 | 5 | 6 | 15.8 | 91 | WWTP Construction | F, H, A, P | $2,500,000 |
| Bulgaria | Sozopol | Domestic | 2 | 2 | 3 | 4 | 4 | 4 | 15.0 | 87 | WWTP Extension | F, H, B, L, P | $6,000,000 |
| | | | | | | | | | | | | TOTAL | $36,450,000 |
| Georgia | Kutaisi | Domestic | | | | | | | | | WWTP Reconstruction | F, H, B, L, P | $6,000,000 |
| Georgia | Batumi | Domestic | | | | | | | | | WWTP Reconstruction | F, H, B, L, P | $13,000,000 |
| Georgia | Chiatura | Manganese | | | | | | | | | WWTP Construction | F, H, B, L, P | $10,500,000 |
| Georgia | Poti | Domestic | | | | | | | | | WWTP Reconstruction | F, H, B, L, P | $2,000,000 |
| Georgia | Zestafoni | Metallurgy | | | | | | | | | WWTP Construction | F, H, B, L, P | $1,500,000 |
| Georgia | Tskhaltobo | Domestic | | | | | | | | | WWTP Reconstruction | F, H, B, L, P | $1,000,000 |
| Georgia | Zugdidi | Domestic | | | | | | | | | WWTP Reconstruction | F, H, B, L, P | $1,500,000 |
| | | | | | | | | | | | | TOTAL | $36,500,000 |
| Romania | Fertilchim | Fertilizer | 5 | 4 | 5 | 6 | 5 | 5 | 24.3 | 100 | WWTP Rehabilitation | F, H, B, L, P | $16,750,000 |
| Romania | Petromedia | Petrochemistry | 2 | 1 | 6 | 5 | 5 | 5 | 18.7 | 77 | WWTP Rehabilitation | F, H, A, P | $9,324,000 |
| Romania | Constanta North | Domestic | 5 | 1 | 4 | 4 | 3 | 5 | 18.6 | 77 | WWTP Extension | F, H, B, L, P | $8,000,000 |
| Romania | Eforie South | Domestic | 5 | 2 | 4 | 5 | 3 | 3 | 18.0 | 74 | WWTP Extension | F, H, B, L, P | $1,800,000 |
| Romania | Mangalia | Domestic | 5 | 2 | 5 | 5 | 3 | 2 | 18.0 | 74 | WWTP Rehabilitation | F, H, B, L, P | $4,000,000 |
| Romania | Constanta South | Domestic | 4 | 2 | 4 | 4 | 3 | 5 | 17.9 | 74 | WWTP Rehabilitation | F, H, B, L, P | $42,420,000 |
| | | | | | | | | | | | | TOTAL | $82,294,000 |

## 3. SENSITIVE AREAS

Estuaries and coastal waters/ of natural or socio-economic value are considered sensitive if they are at higher risk to suffer negative impacts from human activities.

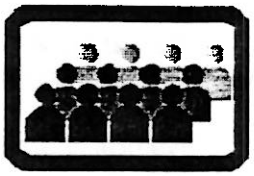
Natural characteristics may determine the vulnerability of a coastal system, for example a Bay with low flushing rate is more sensitive to pollution impacts than one which is well flushed. Human activities determine the level of risk, hence planned development may increase the risk of environmental degradation. Both vulnerability and risk contribute to the "sensitivity" of a particular area or system in the context of this assessment.

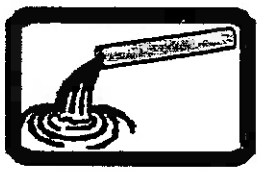
## 4. PROCEDURE

For the successful implementation of the above project, every National Coordinator will be required to provide information and existing data on the Hot Spots and Sensitive Areas in his/her country. In order to facilitate the procedure and in view of the limited available time for the **completion of this task**, which, according to GEF, **should be finished by 15 of March**, the following approach will be taken:

Every National Coordinator will prepare a list of potential hot spots and sensitive areas in his/her country according to his expertise and knowledge and based on existing data, surveys carried out so far and on information already existing. As an indication, the number of hot spots proposed could be related to (a) coastal cities and urban coastal agglomerates with a population of more than 100,000 inhabitants, and other selected coastal cities with considerable population, taking into account the seasonal influence due to tourists and the size of each individual country, (b) main industrial facilities discharging directly into the Mediterranean and not through a municipal sewer and (c) the mouth of the rivers which are considered as potential hot spots. For the above purpose, and after the identification of the hot spots and sensitive areas for which I trust that the attached material will be of assistance, it will be of major importance to fill in the **following questionnaires** with information already existing, in order to **support the fact that the proposed hot spot is a real one**.

## 5. QUESTIONNAIRES





HOT SPOTS IN THE MEDITERRANEAN

COASTAL CITIES

# MUNICIPAL DISCHARGES

# MUNICIPAL DISCHARGES

Country: .....

City: .....

1. Permanent population ..... (last census taken .....)

2. Average seasonal increase.....

(months of tourist season .....)

3. Population served by municipal sewer system .....

4. Main industries (individual or group) served by municipal sewer system:

4.1 Name and type of activity and size (if many, use table at the end)

5. Sewage treatment plant: 5.1 Existent ..... since when

5.2 Non-existent .....

5.3 Planned to be constructed on .....

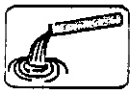
6. Wastewater flow to the treatment plant ..... ($m^3$/day)

(When more than one exists, specify for each one) ..... ($m^3$/day)

6.1 Type of final treatment before discharge:

- Primary ..... (YES or NO)
- Secondary ..... (YES or NO)
- Tertiary ..... (YES or NO)

7. Total wastewater treated ..... ($m^3$/day)



8. Total wastewater discharged (into the marine environment) (for the entire city)

   8.1 Treated ..... ($m^3$/day
   8.2 Untreated ..... ($m^3$/day)

9. Type and location of discharge: (when more than one, specify for each one)

   .....

10. Pollution loads at the discharge point:

   10.1 $BOD_5$ ..... (t/y)

   10.2 COD ..... (t/y)

   10.3 Total-N ..... (t/y)

   10.4 Total-P ..... (t/y)

   10.5 TSS ..... (t/y)

   10.6 Oil (Petroleum Hydrocarbons) ..... (t/y)

   10.7 Heavy metals

      10.7.1 ..... (Kg/y)

      10.7.2 ..... (Kg/y)

      10.7.3 ..... (Kg/y)

   10.8 Organochlorines

      10.8.1 ..... (Kg/y)

      10.8.2 ..... (kg/y)

   10.9 Faecal coliforms ..... (col/100 mL)

11. Quality of receiving environment (water, sediments and biota)

   11.1 Total-N ..... (t/y)

   11.2 Total-P ..... (t/y)

   11.3 TSS ..... (t/y)

11.4 Oil (Petroleum Hydrocarbons) ..... (t/y)

11.5 Heavy metals

11.5.1 ..... (Kg/y)

11.5.2 ..... (Kg/y)

11.5.3 ..... (Kg/y)

11.6 Organochlorines

11.6.1 ..... (Kg/y)

11.6.2 ..... (kg/y)

11.7 Faecal coliforms ..... (col/100 mL)

11.8 PCBs ..... (µg/L)

11.9 Radioactive Substances (if applicable)

11.10 Any other relevant information

12. When a sewage treatment plant and/or sewer system are non-existent, give estimation of the cost needed for the construction (secondary treatment will be included):

.....

13. Additional information regarding the disposal of solid wastes that may affect the receiving waters:

.....

.....

.....

14. Any other remarks:

.....

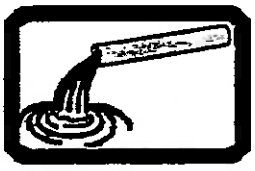
.....

.....

Table to be used in connection to point 4.1

| Name of enterprise | Type of activity | Size | Population equivalent * |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

* Population equivalent will be estimated by using conventional references.



HOT SPOTS IN THE MEDITERRANEAN

INDUSTRIES DISCHARGING DIRECTLY INTO THE SEA

# INDUSTRIAL DISCHARGES

# INDUSTRIAL DISCHARGES DIRECTLY INTO THE SEA

Country: .....

Name of Company: .....

1. Discharge site (geographical position) .....

.....

2. Type of industry: (according to the indicated list)

.....

- *Energy production*
- *Fertilizer production*
- *Production and formulation of biocides*
- *The pharmaceutical industry*
- *Petroleum refining*
- *The paper and paper-pulp industry*
- *Cement production*
- *The tanning industry*
- *The metal industry*
- *The shipbuilding and repairing industry*
- *The textile industry*
- *The electronic industry*
- *The recycling industry*
- *Other sectors of the organic chemical industry*
- *Other sectors of the inorganic chemical industry*
- *Food processing*
- *Treatment and disposal of hazardous wastes*
- *The waste management industry*

3. Industrial wastewater treatment .....
(if YES, please specify type of treatment):

.....

.....

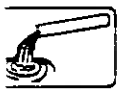
.....

.....

4. Way of discharge:

4.1 By Outfall (YES or NO) .....

4.2 On shore (YES or NO) .....



5. Total wastewater treated ..... ($m^3$/day)

6. Total wastewater discharged: 6.1 Treated ..... ($m^3$/day)

6.2 Untreated ..... ($m^3$/day)

7. Wastewater quality and pollution loads at point of discharge:

| | | ***Wastewater Quality*** | | ***Pollution Loads*** | |
|---|---|---|---|---|---|
| 7.1 | $BOD_5$ | ..... | (mg/L) | ..... | (t/y) |
| 7.2 | COD | ..... | (mg/L) | ..... | (t/y) |
| 7.3 | Total-N | ..... | (mg/L) | ..... | (t/y) |
| 7.4 | Total-P..... | | (mg/L) | ..... | (t/y) |
| 7.5 | TSS | ..... | (mg/L) | ..... | (t/y) |
| 7.6 | Heavy metals..... | | (µg/L) | ..... | (Kg/y) |
| | 7.6.1..... | | (µg/L) | ..... | (Kg/y) |
| | 7.6.2 ..... | | (µg/L) | ..... | (Kg/y) |
| | 7.6.3 ..... | | (µg/L) | ..... | (Kg/y) |
| 7.7 | Persistent Organic Pollutants: | | | | |
| | 7.7.1 PCBs ..... | | (µg/L) | ..... | (Kg/y) |
| | 7.7.2 ..... | | (µg/L) | ..... | (Kg/y) |
| | 7.7.3 ..... | | (µg/L) | ..... | (Kg/y) |
| | 7.7.4 ..... | | (µg/L) | ..... | (Kg/y) |

7.8 Oil (petroleum hydrocarbons) ..... (t/y)

8. Indirect evaluation of pollution (to be filled in when 5, 6 and 7 are not answered):

**PRODUCTION FIGURES**

| Type of Product | Unit | Annual Production |
|---|---|---|
| ..... | ..... | ..... |
| ..... | ..... | ..... |
| ..... | ..... | ..... |
| ..... | ..... | ..... |

## RAW MATERIALS IN USE

| Type of Raw Material | Unit | Annual Consumption |
|---|---|---|
| ..... | ..... | ..... |
| ..... | ..... | ..... |
| ..... | ..... | ..... |
| ..... | ..... | ..... |

| ESTIMATED POLLUTION LOAD | | |
|---|---|---|
| Pollution loads discharged into receiving waters | mg/L | t/y |
| ..... | ..... | ..... |
| ..... | ..... | ..... |
| ..... | ..... | ..... |
| ..... | ..... | ..... |

9. Any other remarks:

.....

.....

.....

.....

10. Selected remedial measures (including preventive and end-of-pipe treatment methods) and cost estimates:

.....

.....

11. Air emission loads (if any): .....

.....

12. When power plants above 200 MW (including nuclear) and cement industries are existing in the coastal zone, specify their emission loads: .....

.....

.....

13. Solid and hazardous wastes with water pollution potential (if any): .....

.....

.....

# DISCHARGES FROM RIVERS AND CANALS

# DISCHARGES FROM RIVERS AND CANALS INTO THE SEA

Country: .....

Name of River/Canal: .....

1. Discharge site (geographical position) .....

.....

2. Average daily flow: ..... ($m^3$/day)

3. Water quality and pollution loads at point of discharge:

| | | ***Water Quality*** | | ***Pollution Loads*** | |
|---|---|---|---|---|---|
| 3.1 | $BOD_5$ | ..... | (mg/L) | ..... | (t/y) |
| 3.2 | COD | ..... | (mg/L) | ..... | (t/y) |
| 3.3 | Total-N | ..... | (mg/L) | ..... | (t/y) |
| 3.4 | Total-P | ..... | (mg/L) | ..... | (t/y) |
| 3.5 | TSS | ..... | (mg/L) | ..... | (t/y) |
| 3.6 | Heavy metals | ..... | (µg/L) | ..... | (Kg/y) |
| | 3.6.1 | ..... | (µg/L) | ..... | (Kg/y) |
| | 3.6.2 | ..... | (µg/L) | ..... | (Kg/y) |
| | 3.6.3 | ..... | (µg/L) | ..... | (Kg/y) |
| 3.7 | Persistent Organic Pollutants: | | | | |
| | 3.7.1 PCBs | ..... | (µg/L) | ..... | (Kg/y) |
| | 3.7.2 | ..... | (µg/L) | ..... | (Kg/y) |
| | 3.7.3 | ..... | (µg/L) | ..... | (Kg/y) |
| | 3.7.4 | ..... | (µg/L) | ..... | (Kg/y) |
| 3.8 | Oil (petroleum hydrocarbons | ..... | | | (t/y) |

4. Any other remarks: .....

.....

## 6. EXPLANATION FOR THE COMPLETION OF THE QUESTIONNAIRES

The questionnaires have been formulated in such a way so as to provide only the necessary information in order to identify the hot spots, the source of the pollution and the necessary action for the improvement of the situation by limiting their input of pollutants into the Mediterranean.

In order to fill in the questionnaires, the following explanation will facilitate the task:

### 6.1 Municipal Discharges

In the first page, on the upper right, indicate the name of the country you are dealing with and the name of the city which according to the permanent population is considered as contributing to the pollution of the sea. In the case of an urban coastal agglomerate which means an extended coastal zone, populated intensively and comprising more than one municipality and/or community, indicate the name of the municipality and/or community.

1. Indicate the permanent population giving also information on the year when the last census was taken and which you are referring to.

2. Indicate the average increase due to tourists, considering the total number of tourists that stay in the city during the peak season, giving also information on the duration of the tourist season in months.

3. Indicate the number of inhabitants that are connected with the municipal sewer system. If such a system does not exist answer "NO".

4. Indicate the name of the main industries, their types of activity and, if the industry is connected with the sewerage system, their size (e.g. number of employees). If a lot of small industries are connected with the sewer, then refer to them as a group of similar industries (for example, if ten small-sized tanneries are connected with the sewer, then refer to them as: "a group of 10 tanneries"). For this purpose use the table at the end of the questionnaire.

5. This part of the questionnaire concerns the sewage treatment plant and there is a need to provide more information on whether or not such a plant exists and, in the event that it is non-existent, indicate when construction is planned.

6. Indicate the flow of wastewater to the treatment plant in $m^3$/day if the treatment plant exists. If no data are available, please make an estimation based on the daily average water consumption *per capita* multiplied by the number of inhabitants. Where more than one treatment plant exists, specify the daily wastewater flow for each one.

   6.1 Depending on the type of final treatment of the wastewater plant, specify if there is primary, secondary and tertiary treatment.

7. Indicate the total wastewater treated per day, taking into consideration that, if there is only one treatment plant, the answer would be identical to 6 above. If there is more than one treatment plant, then the sum of the wastewater treated for each one should be provided.

8.1 Indicate the total treated wastewater discharged into the marine environment.

8.2 If the treatment plant serves part of the city and there is wastewater which has not been treated but discharged into the marine environment, then indicate here the untreated flow in cubic metres per day.

9. Indicate the type of discharge giving additional information if this is the case, e.g. discharge through marine outfall, 200 metres from the shore. Indicate also the name of the location which could be the name of a bay or whatever you feel will be appropriate for easily identifying the position of the eventual hot spot.

10. Indicate the pollution loads per year which are expressed either in $BOD_5$ or COD and total N, total P etc. at the discharge point using any available data.

11. When no available data exist for filling in No. 10 above, then give any information and data on the quality of the receiving waters, on the quality of sediments and/or biota using the parameters listed from 11.1 to 11.10, so as to facilitate the decision or whether, because of its quality, the marine environment can be considered as a hot spot or a sensitive area.

12. Give an estimation of the funds needed for the construction of the sewer system and/or the sewage treatment plant if they are non-existent. The estimation could be based on information on costs incurred for other works of similar or different size. If the latter is the case, then a gross estimation of the cost per inhabitant would provide an indicative amount.

13. Provide additional information regarding the disposal of solid wastes, so as to provide information and data on the eventual impact they may represent for the receiving waters. For example a landfill close to the sea could significantly contribute to the non satisfactory quality of the waters.

14. Give any other comments that you think may help to decide whether the examined city contributes to increased levels of pollution and constitutes a hot spot or a sensitive area.

### 6.2 Industrial Discharges

This questionnaire will serve for the identification of a hot spot or a sensitive area that is due to direct industrial discharges into the sea. Main industrial facilities of the indicated list will be considered.

1. Indicate the name of the geographical position where the considered industrial facility is located.

2. Indicate the type of industry which falls under the indicated list of activities, giving, if needed, a specification on the type of industry.

3. Write 'No' if no treatment exists prior to discharge and, if there is a treatment plant, specify the treatment e.g. neutralization, coagulation or whatever is considered necessary to give a more precise picture of the situation.

4.1 and 4.2 Specify the type of discharge into the marine environment either by a submarine outfall or on shore or specify other means existing.

5. Indicate the total wastewater treated in cubic metres per day, if there is treatment.

6.1 and 6.2 If part of the wastewater is treated then indicate the discharge volumes of the treated wastewater and untreated wastewater.

7. Fill in whatever you find available in order to give a precise picture of the situation. Therefore if data exist for the wastewater quality and for the parameters listed from 7.1 - 7.8, fill in the first column. If, on the contrary, no data are available for the wastewater quality, and data on the pollution loads affecting the receiving waters exist, then complete points 7.1 - 7.8 in the second column.

8. In case there is no information on points 5, 6 and 7, an indirect evaluation of the pollution will be needed and therefore only if 5, 6 and 7 are not answered, it will be necessary to fill in either the **production figures**, or the **raw materials used** , according to the type of industry. For the production figures, indicate the type of product (e.g. for Dairies that produce milk, butter and cheese, write the 3 types of products), the unit referred to (e.g. tn or kg), and the figure of the annual production. For the raw materials in use, indicate the type of raw material (e.g. apricots, for canning of apricots), and the figure of the annual consumption. The above information will permit the evaluation of the pollution load, using appropriate conversion factors, and the results will appear in the third table of point 8.

9. Give any other comments that will contribute to a better understanding of the situation.

10. If there is no treatment, give a cost estimation of the most appropriate remedial measure including both preventive as well as end-of-pipe methods.

11. For any other emission loads from the industrial activity, give all available information.

12. If the industrial activity also produces solid and hazardous wastes which are treated or disposed of in a way that could affect the quality of the receiving waters, then provide any relevant available data.

## FORMAT FOR COUNTRY REPORTS

The country report to be prepared should be structured in the following way:

1) Introduction about the current situation and the modalities of conducting the survey (problems encountered, acknowledgments, etc.).

2) Approach followed in defining hot spots and sensitive areas in the particular country.

3) Contribution of different sources to the defined hot spots or sensitive areas [see table]*. For each of the main sources e.g. municipal, industrial, etc. it will be necessary to provide information using the questionnaires, which will be attached to the report as an annex.

4) Priority hot spots and sensitive areas will be presented in a table using the ranking system, mentioned before, and presented as an example.

5) Identification of main gaps and constraints (including lack of information, reliability of information, contemporary validity of data related to dates when data were collected).

6) Proposed options for remedial actions (in order of priority and with justification for prioritization, together with information on the economic cost elements).

7) Annex containing the questionnaires.

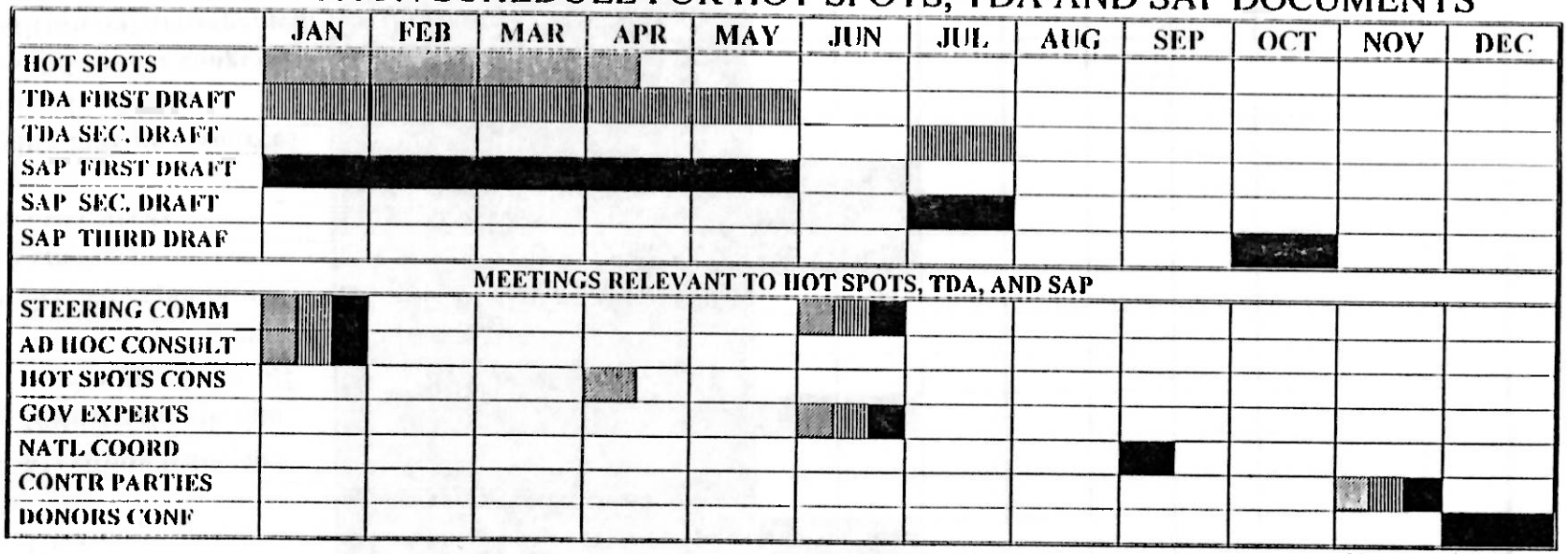
* Table (to be used when referring to 3)

| Hot Spots (or sensitive Areas) | Main sources of pollution | Principal supporting data extracted from the questionnaires |
|---|---|---|
| | - domestic<br>- industrial<br>- ..... | |

# ANNEX IX

# TIMETABLE FOR THE ACTIVITIES

# PREPARATION SCHEDULE FOR HOT SPOTS, TDA AND SAP DOCUMENTS



# HOT SPOTS AND TDA PREPARATION SCHEDULE

| ACTIVITIES | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY |
|---|---|---|---|---|---|---|---|
| 3.1 Sources of pollution | | | | | | | |
| 3.1.1 Rivers | | | | | | | |
| 3.1.2 Cities | | | | | | | |
| 3.1.3 Ports | | | | | | | |
| 3.1.4 Maritime transport | | | | | | | |
| 3.1.5 Industrial pollution | | | | | | | |
| 3.1.6 Agricultural run-off | | | | | | | |
| 3.1.7 Airborne pollution | | | | | | | |
| 3.1.8 Seabed exploitation | | | | | | | |
| 3.2 Hot spots | | | | | | | |
| 3.3 Sensitive areas | | | | | | | |
| 3.4 Tourism | | | | | | | |
| 3.5 Living marine resources | | | | | | | |
| 3.6 Critical habitats | | | | | | | |
| 3.7 Coastal zone management | | | | | | | |
| 3.8 Institutional arrangement | | | | | | | |
| 3.9 Public participation | | | | | | | |