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30 July 1981

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XI Meeting of the Inter-Agency
Advisory Committee (IAAC) for MED POL
Geneva, 5 - 10 July 1981

MINUTES

INTRODUCTION

1. The meeting was convened by the Co-ordinating Unit for the Mediterranean Action Plan in co-operation with UNEP's Regional Seas Programme Activity Centre. The agencies' members of the IAAC plus UNESCO and IMCO were invited to attend the meeting. IMCO and UNESCO declined for administrative reasons. IOC did not inform the Committee about the reasons for their absence.
2. The meeting was attended by nine representatives of the international organizations and UNEP. For the complete list of participants, see annex I to these minutes. The list of documents and the agenda adopted are also attached as annexes II, II(a) and III.

Agenda item 1. Opening of the meeting

3. The meeting was opened by S. Keckes, Director of UNEP's regional Seas Programme Activity Centre and A. Manos, Co-ordinator of UNEP's Mediterranean Action Plan. They welcomed the participants and reminded them of the tasks of the Eleventh Session of IAAC. They also introduced A. Cruzado as the newly appointed Senior Scientist of the Co-ordinating Unit.

Agenda item 2. Review of the work on the completion of MED POL - Phase I

4. Cruzado reviewed the annex IV to UNEP/IAAC-X/5 which reported the various activities to be undertaken to complete MED POL - PHASE I. The status of these activities was examined and those not yet implemented were pointed out.

5. In particular, the Committee agreed to hold a FAO/WHO meeting at the end of July to finalize the Environmental Quality Criteria; to start the preparation of the new issue of the Mediterranean Directory of Marine Research Centres as soon as possible; to have the "Selected Bibliographies" ready for distribution by August; finally, to send the letter to the Mediterranean focal points asking for the nomination of the National Co-ordinators for MED POL, as soon as possible. It was also pointed out that some material necessary to complete the administrative and final report and the programme description of MED POL - PHASE I was still missing from some of the agencies; in addition, the draft Individual Summary Reports of the participants in MED POL had not yet been sent from UNEP to the relevant agencies. In both cases the Committee agreed to comply with their commitments as soon as possible before the end of July.

Agenda item 3. Preparation of the monitoring programme and of proposals for supporting and research activities in the framework of MED POL - Phase II

6. A. Cruzado introduced document UNEP/IAAC-X1/3. The Committee undertook a detailed discussion and a new structure of the document was recommended. The final version of the document, which would be presented to the First Meeting of the Working Group for Scientific and Technical Co-operation (Athens 28 September - 2 October), was prepared and it is presented as annex IV to these minutes.
7. The Committee discussed in particular the problem of the reporting formats in connection with the monitoring programmes. It was recommended that the formats should be simpler than those used during MED POL - Phase I and that new forms should be developed for reporting data on metals, halogenated hydrocarbons and faecal coliforms. As to the forms for standard physical and chemical parameters, the standard IODE procedure should be followed. UNEP prepared draft formats in consultation with the relevant collaborating agencies and they are included in annex IV to these minutes.
8. As to the research and study topics to be developed and presented to the First Meeting of the Working Group for Scientific and Technical Co-operation, the representatives of the collaborating agencies were asked to formulate proposals for each of the research items agreed at the Second Meeting of the Contracting Parties (UNEP/IG.23/11, annex V). In addition, UNEP prepared an introduction which would explain the mechanisms to be used in MED POL - Phase II in the development and implementation of these research topics (see Annex V attached to these minutes).

Agenda item 4. Preparation of the First Meeting of the Working Group for Scientific and Technical Co-operation (Athens 23 September - 2 October)

9. The preparation of the First Meeting of the Working Group for Scientific and Technical Co-operation to be held in Athens, 23 September - 2 October, was discussed. It was agreed that in addition to the National Co-ordinators a small number of selected scientists would be invited by the relevant agencies after receiving a letter from UNEP authorizing it. A provisional list of scientists was prepared with the recommendation for a further revision.
10. The importance of having at the meeting all National Co-ordinators designated by the Contracting Parties was stressed and UNEP was asked to make it very clear in the letter of invitation to the National Focal Points. A provisional agenda, a provisional annotated agenda and a list of documents to be presented to the meeting were prepared (see annex VI to these minutes). UNEP was also asked to make early arrangements in order to hold the meeting in Athens and to use the available drachmas for its preparation.

Agenda item 5. Finalization of the project document covering the agencies' participation in MED POL - Phase II, including financial implications

11. The draft project document covering the agencies' participation in MED POL - PHASE II, which had been prepared at the Tenth IAAC Meeting (Geneva, 4-8 May 1981) and slightly reviewed by UNEP, was analysed. Some corrections were introduced in page 11 paragraph 1) and paragraph iii); page 12 with the introduction of a new paragraph 3.2.1 (iii), and page 13, paragraph 10. The new version of the document is attached to these minutes as annex VII. Annexes III and IV at pages 23 and 24 of the draft project document remained to be completed with the missing information by the collaborating agencies.
12. As to the formal approval of the project document, the representative of WHO informed the Committee of the readiness of his organization to sign it following its formal approval. The representatives of FAO WMO and IAEA asked UNEP to send the project document, finalized at the meeting, to the competent authorities of their organizations through the official channels asking for comments before sending it to them for signature.

13. The Committee agreed that when revisions of the project document would be necessary between UNEP and one agency involved, such revisions would be made between UNEP and that agency only, as long as they would not affect any other agency involved.
14. Some administrative arrangements were agreed in order to cover the transitional period 1 August - 31 October 1981, between the end of the MED POL - Phase I and the clearance and signature of the Project Document for the implementation of MED POL - Phase II. A new project revision was prepared according to the following criteria:
 - (i) no new activities should be undertaken except those necessary for the continuation of the maintenance service and the preparation of the national monitoring programmes;
 - (ii) the preparation of the First Meeting of the Working Group for Scientific and Technical Co-operation, including attendance by experts from the Co-operating Agencies and experts designated by these agencies, should be covered from the Greek special contributions;
 - (iii) the expected activities are (see annex V, UNEP/IAAC-X/5):
 - (a) Continuation of the maintenance service.
Activity 1
 - (b) Development of guidelines for data reporting for submission to the Meeting of the Working Group in (e). Activity 3
 - (c) Selection of existing sampling and analytical in (e). Activity 4
 - (d) Twelfth Inter-Agency Advisory Committee Meeting (25 - 26 September 1981).
Activity 17
 - (e) Preparation of the First Meeting of the Working Group for Scientific and Technical Co-operation (28 September - 2 October 1981). Activity 18
 - (f) Assistance to National Co-ordinators for the preparation of national monitoring programme. Activity 19

15. Financial requirements

	MED TRUST FUND		AGENCY CONTRIBUTION
FAO (ME/0503-75-07)	US \$		
3 month expert	18,000		
3 month secretary	6,000		
1 travel Rome/Geneva	1,000	25,000	6,000
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WHO (ME/0503-76-05)			
3 month expert	18,000		
3 month secretary	4,500	22,500	4,000
<hr/>			
IAEA (ME/0503-75-04)			
3 month experts	13,500		
3 month secretary	4,500		
Travel	3,000		
Expendable equipment	1,000		
Miscellaneous	1,500	23,500	5,000
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TOTAL		71,000	
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Agenda item 6. Closure of the Meeting

15. The English version of these minutes was unanimously adopted by the Committee while its annexes were considered still subject to a further revision by mutual consent of UNEP and the collaborating agencies.
17. The Meeting was closed on 10 July 1981 at 17.00 hours. G. Ponghis, the representative of WHO, at his last IAAC meeting since he was to leave WHO, was thanked by all members of the Committee for the excellent and highly constructive work he had performed during the first five years of the MED POL programme. The wish to see him still involved in the First Meeting of the Working Group for Scientific and Technical Co-operation was also unanimously expressed.

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ANNEX II

AGENDA

1. Opening of the Meeting
2. Review of the work on the completion of MED POL - PHASE I
3. Preparation of the monitoring programme and of proposals for supporting and research activities in the framework of MED POL - PHASE II
4. Preparation of the First Meeting of the Working Group for Scientific and Technical Co-operation
5. Finalization of the project document covering the agencies' participation in MED POL - PHASE II, including financial implications
6. Closure of the Meeting

ANNEX II(a)

ANNOTATED AGENDA

Agenda item 1 : Opening of the meeting

The meeting will start on 6 July 1981 at 10.00 a.m. at the UNEP Geneva Office, in Petit-Saconnex.

It will be opened by S. Keckes, Director, Regional Seas Programme Activity Centre and A. Manos, Co-ordinator of the Mediterranean Action Plan. Representatives of FAO, UNESCO, IDC, WHO, WMO and IAEA have been invited to attend the Meeting. The representative of IMCO has also been invited to take part in the discussion on agenda items 1 and 2.

Agenda item 2 : Review of the work on the completion of MED POL - PHASE 1

The workplan and timetable for the completion of MED POL - PHASE 1 activities (annex IV to UNEP/IAAC-X/5) which was prepared by IAAC X (Geneva, 4-8 May 1981) will be examined and the status of the various activities to be implemented will be reviewed.

Agenda item 3 : Preparation of the monitoring programme and of proposals for supporting and research activities in the framework of MED POL - PHASE 11

The secretariat will introduce UNEP/IAAC-XI/5. The document, which was prepared by the secretariat along the lines of the discussion held at IAAC X (Geneva, 4-8 May 1981), is aimed at providing the governments with guidelines for the implementation of the national monitoring programmes in the framework of MED POL - PHASE 11. The meeting is expected to review and revise this document, as appropriate. In addition, the research topics and the supporting activities listed in para. 40-42 of annex V to UNEP/IG.25/11 will be examined and modalities and requirements for their implementation, discussed.

Agenda item 4 : Preparation of the First Meeting of the Working Group
for Scientific and Technical Co-operation

The meeting is expected to review and agree on the arrangements for the First Meeting on Scientific and Technical Co-operation (Athens, 28 September - 2 October 1981). In particular, the meeting is expected to propose a list of experts to be invited to the meeting and agree on the documents to be presented at the meeting.

Agenda item 5 : Finalization of the project document covering the
agencies' participation in MED POL - PHASE II, including
financial implications

The relevant agencies participating in the meeting are expected to finalize the draft project document which was prepared at IAAC X (annex VI to UNEP/IAAC/X-5) which will serve as the basis for collaboration in MED POL - PHASE II. Financial and institutional requirements by the agencies wishing to be involved in MED POL - PHASE II will be identified, discussed and finalized in the light of the availability of funds.

Agenda item 6 : Closure of the meeting

The meeting is expected to terminate at 17.30 hours on 10 July 1981 with the adoption of the meeting's minutes.

WORKPLAN AND TIMETABLE

Date	Sitting	Agenda item
6 July	morning	1, 2
6 July	afternoon	2 (continued)
7 July	morning	2 (continued), 3
7 July	afternoon	3 (continued)
8 July	morning	3 (continued)
8 July	afternoon	3 (continued), 4
9 July	morning	4 (continued)
9 July	afternoon	4 (continued), 5
10 July	morning	5 (continued)
10 July	afternoon	5 (continued), 6

ANNEX III

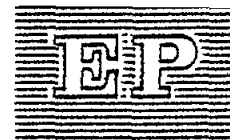
LIST OF DOCUMENTS

UNEP/IAAC-XI/1	Provisional Agenda
UNEP/IAAC-XI/2	Annotated Provisional Agenda
UNEP/IAAC-XI/3	Guidelines for the preparation and implementation of national monitoring programmes
UNEP/IAAC-XI/INF.1	List of documents
UNEP/IAAC-XI/INF.2 (UNEP/LG.23/11)	Report of the Second Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Related Protocols and Intergovernmental Review Meeting of Mediterranean Coastal States on the Action Plan, Cannes, 2-7 March 1981
UNEP/IAAC-XI/INF.3 (UNEP/IAAC-X/5)	Minutes of the tenth meeting of the Inter-Agency Advisory Committee (IAAC) for MED POL, Geneva, 4-8 May 1981).

ANNEX IV



United Nations
Environment
Programme



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16 July 1981
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First meeting of the Working Group on
Scientific and Technical Co-operation

Athens, 28 September - 2 October 1981

LONG-TERM POLLUTION MONITORING AND RESEARCH PROGRAMME

MED POL - PHASE II

Basic Criteria for the Implementation of National Monitoring Programmes

Basic Criteria for the Implementation of National Monitoring Programmes

1. Introduction

The Mediterranean Governments, as Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution, have the full responsibility of the monitoring activities at the national level (Article 10) of the Convention; article 4) of the Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Substances in Cases of Emergency; and article 8) of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources).

The 2nd meeting of the Contracting Parties to the Convention and its related protocols endorsed a Long-term Pollution Monitoring and Research Programme (designated as MED POL - PHASE II), whose basic details were laid down in Annex V to the report of this meeting (UNEP/IG.23/11). (See annex I).

UNEP, responsible to the Contracting Parties for the overall co-ordination of the activities and for their harmonization in the various regional seas will assist the Governments through the Mediterranean Co-ordinating Unit (MED UNIT) to organize their national monitoring programmes.

Taking into account the previous terms of reference, as well as the experience gained through the pilot phase of the Mediterranean Pollution Monitoring and Research Programme (MED POL - PHASE I) the Mediterranean Co-ordinating Unit in close collaboration with the Co-operating Agencies has prepared the present document aiming at the establishment of general criteria, applicable, in greater or lesser extent, to all the Mediterranean countries.

This document contains the draft Agreement to be signed between the Governments and UNEP (annex II) and an outline of the Technical Annex to the Agreement (annex III) in which the modalities of the technical co-operation between each of the Governments and UNEP, constituting the National Monitoring Programme, are described in detail.

A set of guidelines for the preparation of the Technical Annex is also included (annex IV), based on the experience gained through the pilot phase of MED POL as well as on the requirements of the Convention for the Protection of the Mediterranean Sea against Pollution and related Protocols (Land-based Sources, Dumping and Emergency Protocols).

The First Meeting of the Working Group for Scientific and Technical Co-operation (WGSTC) should carefully review the document and make recommendations for the implementation of the monitoring activities to the MED Co-ordinating Unit which shall subsequently prepare, in order to assist the Mediterranean Governments, detailed proposals for the individual National Monitoring Programmes.

These proposals should then be further elaborated by the National Co-ordinators for MED POL in consultation with their national institutions which will be in charge of the implementation of the monitoring activities. The MED Co-ordinating Unit and the Co-operating Agencies will be ready, at any time, to assist the National Co-ordinators in this task which should be completed before the end of 1981 in order for the activities to get started with the new year, 1982. Signature of the Agreement should immediately follow the acceptance of the Technical Annex by the respective Government and UNEP.

2. National Monitoring Programmes

The National Monitoring Programmes should be organized in such a way that allow the Contracting Parties to further the goals of the Convention and to successfully implement the environmental assessment required by the Protocols.

These objectives shall be achieved through the continued evaluation of the information provided by the Parties on the sources, amounts, levels, trends, pathways and effects of pollutants in the Mediterranean. This information shall be systematically collected, analysed and reported using commonly agreed methods, and taking into account additional data available from other sources.

In addition to the monitoring, the research activities should facilitate the involvement of the scientific community in the monitoring and thus substantially increase the scientific value of the data produced, providing real scientific insight into the role of pollutants in the marine system and the mechanisms which control the system itself. It should also contribute to the improvement of the scientific capabilities of various Mediterranean countries which are still behind the average in their technological power.

The National Monitoring Programmes shall be the object of Agreements (see annex II) between the Governments and UNEP (MED UNIT), and should be prepared by the Governments, through their respective National Co-ordinator for MED POL in close collaboration with UNEP through the MED UNIT assisted by the Co-operating Agencies.

These programmes will include, in a Technical Annex, (see annex III), a workplan for the monitoring of the sources and of the coastal, and reference areas clearly stating geographic boundaries, sampling sites and frequency, analytical techniques, equipment available and its current state, sea-going facilities, institutional arrangements and any other relevant information including financial and human resources and national and international contributions in kind or in cash. The Agreements should be negotiated in such a way that as many of the available resources, at the national level, as possible be put at work under the "umbrella" of the MED POL.

3. General Co-ordination

The co-ordination of the MED POL - PHASE II monitoring activities will be carried out by the MED as part of its responsibilities. In addition, the MED UNIT will be responsible:

- 3.1 in consultation with the Co-operating Agencies, for the day-to-day co-ordination of the work carried out by the national collaborating MED POL institutions;
- 3.2 for the collection, evaluation, processing and dissemination of the results of the MED POL - PHASE II, and for the assessment on the state of the Mediterranean Sea in collaboration with the relevant Co-operating Agencies;
- 3.3 in consultation with the relevant Co-operating Agencies, for the convening of the Working Group on Scientific and Technical Co-operation (WGSTC) and of groups of experts, either periodically or on an ad hoc basis, to assist in the analysis, integration and interpretation of MED POL - PHASE II data;
- 3.4 for the overall guidance on the data quality control and on the maintenance service organized and carried out by the competent Co-operating Agencies or selected national institutions.

4. National Co-ordination

The co-ordination of the National Monitoring activities will be carried out by the National Co-ordinators for MED POL, designated by their respective Governments, who shall appear to UNEP as responsible for the implementation of the National Monitoring Programmes as well.

Formal communications should always be maintained between the National Co-ordinators for MED POL and the MED UNIT.

Contacts between the various national and/or international institutions might however be held for technical matters, especially in the implementation of the intercalibration and quality control programme.

In addition the National Co-ordinators for MED POL will be responsible for:

- 4.1 channeling all the formal communications between the MED UNIT and the national MED POL collaborating institutions and to report to the MED UNIT on the progress experienced by the National Monitoring Programme according to the agreed format and schedule.

- 4.2 providing the MED UNIT with the data submitted by the national MED POL collaborating institutions, ensuring the compliance with the agreed formats and schedules.
- 4.3 reporting and will assess as required on the overall amounts of pollutants discharged and dumped from all national sources.
- 4.4 assessing and reporting as required on the state of the pollution in the areas monitored by their national MED POL collaborating institution.
- 4.5 advising the MED UNIT through the regular meetings of the Working Group on Scientific and Technical Co-operation (WGSTC), as a member of the group, on technical and policy matters related to the National Monitoring Programme and in reviewing the technical reports prepared by the MED UNIT before submission to the Contracting Parties.

National monitoring committees, including representatives of the institutions involved and experts might be established to assist the respective National Co-ordinator for MED POL in the preparation and implementation of the National Monitoring Programmes.

5. Collaborating MED POL institutions

Research and other institutions participating in the monitoring activities, should be listed, and their functions specified, in the Technical Annex to the Agreement (see annex III). They will be considered as collaborating MED POL institutions.

Scientists involved in the National Monitoring Programmes will participate in relevant working groups, experts meetings and consultations in their personal capacity, when so invited by the MED UNIT or the Co-operating Agencies. These scientists may eventually represent their national co-ordinator for MED POL at meetings of the Working Group on Scientific and Technical Co-operation, and participate in intergovernmental meetings as national delegates or as part of their national delegations.

ANNEX I

LONG-TERM PROGRAMME FOR POLLUTION MONITORING AND RESEARCH IN THE MEDITERRANEAN (MED POL - PHASE II)

BACKGROUND

1. The pilot phase of the Co-ordinated Mediterranean Pollution Monitoring and Research Programme (MED POL - PHASE I) was initiated in 1974 and formally approved by the Intergovernmental Meeting on the Protection of the Mediterranean (Barcelona, 28 January - 4 February 1975) as the scientific/technical component of the Mediterranean Action Plan.

2. Initially it consisted of seven pilot projects (MED POL I-VII), which were later expanded by an additional six pilot projects (MED POL VIII-XIII), some of which remain in a conceptual stage only. It was based on the work of 83 national research centres designated by 16 Mediterranean States and the EEC as participants in co-operative networks and on the input of eight United Nations organizations (ECE, UNIDO, FAO, UNESCO, IOC of UNESCO, WHO, WMO, IAEA), IUCN and ICSEM. The over-all co-ordination and guidance for MED POL - PHASE I was provided by UNEP, acting as the secretariat of the Mediterranean Action Plan.

3. The general objectives of the MED POL - PHASE I, evolved through a series of expert and intergovernmental meetings, were

To formulate and carry out a co-ordinated pollution monitoring and research programme taking into account the goals of the Mediterranean Action Plan and the capabilities of the Mediterranean research centres to participate in it;

To assist national research centres in developing their capabilities to participate in the programme;

To analyse the sources, amounts, levels, pathways, trends and effects of pollutants relevant to the Mediterranean Sea;

To provide the scientific/technical information needed by the Governments of the Mediterranean States and the EEC for the negotiation and implementation of the Convention for the Protection of the Mediterranean Sea against Pollution and its related protocols;

To build up consistent time-series of data on the sources, pathways, levels and effects of pollutants in the Mediterranean Sea and thus to contribute to the scientific knowledge of the Mediterranean Sea.

4. The results of, and experience gained through MED POL - PHASE I are reflected in the documents listed in the appendix to this annex.

5. The Intergovernmental Review Meeting of Mediterranean Coastal States and First Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution, and its related protocols (Geneva, 5-10 February 1979), having examined the status of MED POL - PHASE I, recommended that during the 1979/1980 biennium a long-term pollution monitoring and research programme should be formulated and the present document is a response to this request.

6. The legal obligations of the Contracting Parties to the:

Convention for the Protection of the Mediterranean Sea against Pollution; adopted at Barcelona on 16 February 1976, entered into force on 12 February 1978;

Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft; adopted at Barcelona on 16 February 1975; entered into force on 12 February 1978;

Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency; adopted at Barcelona on 16 February 1976; entered into force on 12 February 1978;

Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources; adopted at Athens on 17 May 1980.

7. Based on the recommendations made at various expert and intergovernmental meetings, this draft long-term (10 years) programme for pollution monitoring and research (MED POL - PHASE II) was formulated by the secretariat of the Convention (UNEP) in co-operation with the organizations which supported the MED POL - PHASE I. Subsequently, it was formally approved by the Second Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its related protocols and the Intergovernmental Review Meeting of Mediterranean Coastal States on the Action Plan held at Cannes, 2-7 March 1981.

OBJECTIVES

8. The general long-term objective of MED POL - PHASE II is to further the goals of the Barcelona Convention by assisting the Parties to prevent, abate and combat pollution of the Mediterranean Sea Area and to protect and enhance the marine environment of the Area. The specific objectives are designed to provide, on a continuous basis, the Parties to the Barcelona Convention and its related protocols with:

Information required for the implementation of the Convention and the protocols;

Indicators and evaluation of the effectiveness of the pollution prevention measures taken under the Convention and the protocols;

Scientific information which may lead to possible revisions and amendments of the relevant provisions of the Convention and the protocols and for the formulation of additional protocols;

Information which could be used in formulating environmentally-sound national, bilateral and multilateral management decisions essential for the continuous socio-economic development of the Mediterranean region on a sustainable basis;

Periodic assessment of the state of pollution of the Mediterranean Sea.

9. These objectives will be achieved through the evaluation of the information on the sources, amounts, levels, trends, pathways and effects of pollutants in the Mediterranean, which will be collected, analysed and reported on a systematic basis using commonly agreed methods and taking into account data available from other sources.

PRINCIPLES

10. The basic principles used in the development of MED POL - PHASE II are listed below:

(a) Mechanisms which will be used for MED POL - PHASE II related to policy making:

Periodic meetings of Contracting Parties to decide on the programme, approve its budget, review its progress and evaluate its results;

Periodic meetings of the Working Group for Scientific and Technical Co-operation which will consist of national MED POL co-ordinators designated by the relevant national authorities to assist the Contracting Parties in reviewing the progress of the programme and in evaluating the results thereof and to prepare relevant recommendations for submission, through UNEP as the secretariat of the Convention, to the meetings of the Contracting Parties.

(b) The monitoring of, and research on, pollutants affecting the Mediterranean marine environment will reflect primarily the immediate and long-term requirements of the Barcelona Convention and its protocols (including those protocols which are in their formative stage) but will also take into account factors needed for the understanding of the relationship between the socio-economic development of the region and the pollution of the Mediterranean Sea.

(c) The strategy of the programme will be such as to provide information on pollution trends within the Mediterranean, recognizing that the dynamics of the system are such that pollution in one area can cause detrimental effects in other areas.

(d) For this purpose, monitoring will be organized on several levels:

Monitoring of sources of pollution providing information on the type and amount of pollutants released directly into the environment;

Monitoring of nearshore areas, including estuaries, under the direct influence of pollutants from identifiable primary (outfalls, discharge and coastal dumping points) or secondary (rivers) sources;

Monitoring of offshore areas (reference areas) providing information on the general trends in the level of pollution in the Mediterranean;

Monitoring of the transport of pollutants to the Mediterranean through the atmosphere, providing additional information on the pollution load reaching the Mediterranean Sea.

(e) Studies and research undertaken in the framework of the programme will be directly relevant to the achievement of the objectives of the programme.

(f) PHASE II will be based primarily on the experience and results obtained during PHASE I but will also take into account the experience gained through other large-scale national, bilateral or multilateral research and monitoring programmes carried out in the Mediterranean and in other regions of the world.

(g) The work will be carried out by national research centres which will not necessarily have to carry out all the aspects of the programme, in particular those which actively participated in PHASE I, taking into account the need for adequate

geographic coverage. These centres will be designated by the relevant national authorities and will be named "collaborating UNEP IED POL centres" after demonstrating their relevant technical competence. Participation of national institutions in the work will be formalized through contracts based on proposals submitted to the Mediterranean Action Plan Co-ordinating Unit in response to requests.

(h) The results of PHASE II will be collated, processed and disseminated by the unit co-ordinating the Mediterranean Action Plan, in co-operation with the relevant specialized organizations of the United Nations system. The International Computing Centre (ICC) at Geneva will be used for data processing according to agreed standard practices, making full use of existing mechanisms for data exchange.

(i) Data generated in PHASE II will be comparable, to the largest extent feasible, with those obtained during PHASE I and with those generated through UNEP-sponsored regional seas programmes in other regions, thus contributing to the Global Environment Monitoring System (GEMS), and furthering the concept of integrated monitoring of the environment. The interregional comparability of data will be assured through UNEP's Regional Seas Programme Activity Centre.

(j) The over-all co-ordination of IED POL - PHASE II will be vested in the Mediterranean Action Plan Co-ordinating Unit, acting on behalf of UNEP (the secretariat of the Barcelona Convention).

(k) The day-to-day co-ordination of the work carried out by national institutions participating in IED POL - PHASE II will be achieved through the relevant international organizations, under the responsibility of the Co-ordinating Unit.

(l) Mechanisms which will be used, as appropriate, for the analysis of data and their initial evaluation are:

The unit co-ordinating the Mediterranean Action Plan in co-operation with the international organizations;

The Working Group for Scientific and Technical Co-operation;

Experts, selected by the Co-ordinating Unit in consultation with the international organizations. These experts will act in their personal capacity;

Periodic meetings of scientists participating in the programme to discuss the progress made in the projects and the future programme.

(m) Financial resources for the implementation of PHASE II are:

(i) - Cash from:

Mediterranean Trust Fund;
UNEP's Fund;
Voluntary contributions.

(ii) Contributions in kind, services and activities related to the Mediterranean Action Plan from:

Collaborating national centres;
Governments of the Mediterranean States and the EEC;
Specialized organizations participating in the programme.

MONITORING

11. Several types of monitoring will be undertaken, all contributing to the fulfilment of the principles contained in paragraph 10.

A. Monitoring of sources of pollution to provide information on the type and amount of pollutants reaching the marine environment from coastal sources.

12. The purpose of this monitoring is to establish the pollution load reaching the Mediterranean Sea and to contribute to the understanding of biogeochemical cycles of pollutants relevant to the Mediterranean Sea. It will cover the:

(a) Survey of the type and amount of pollutants discharged directly into the coastal waters from land-based (coastal) sources;

(b) Survey of the type and amount of pollutants dumped directly into the sea;

(c) Survey of the type and amount of pollutants dumped in emergency or released accidentally into the sea;

(d) Assessment of the type and amount of selected substances reaching the sea directly through natural (weathering, hydrothermal, etc.) processes from land-based (coastal) or maritime sources.

13. Pollutants to be monitored include:

(a) Pollutants listed in annexes I and II to the Land-Based Sources Protocol (paragraph 12 (a));

(b) Pollutants listed in annexes I and II to the Dumping Protocol (paragraph 12 (b));

(c) Pollutants referred to in article 8 and article 9 of the Dumping Protocol (paragraph 12 (c));

(d) Pollutants referred to in article 8 of the Emergency Protocol (paragraph 12 (c));

(e) Substances which may contribute significantly to the over-all level (concentration) of pollutants in the sea (paragraph 12 (d)).

14. The monitoring will be based on:

(a) Reports to be submitted by the Contracting Parties according to article 7, article 8 and article 9 of the Dumping Protocol;

(b) Reports to be submitted by the Contracting Parties according to article 8 and article 9 of the Emergency Protocol;

(c) Reports to be submitted by the Contracting Parties according to article 6 and article 13 of the Land-Based Sources Protocol;

(d) Reports to be submitted by the Contracting Parties on monitoring of sources for substances which may contribute substantially to the over-all level (concentration) of pollutants in the sea (paragraphs 12 (d) and 13 (c)). Data will be generated by national research centres designated by their Governments to participate in the programme.

B. Monitoring of the coastal waters, including estuaries, within the limits defined by article 1 of the Barcelona Convention and by article 3 of the Land-Based Sources Protocol, under the direct influence of pollutants from identifiable primary (c.g. outfalls, discharge or coastal dumping points) or secondary (rivers and other watercourses) sources

15. The purpose of this monitoring is to establish the effects of measures taken by Contracting Parties under the Land-Based Sources Protocol (article 8 (b)).

16. The monitoring will be carried out by governmentally-selected national research centres to monitor areas within their national jurisdiction for the following parameters (indicators) selected on the basis of:

(a) Scientific and economic feasibility;

(b) Specific needs of the Mediterranean, i.e. relevance to annexes I and II to the Land-Based Sources Protocol;

(c) Identifiable cause-effect relationship.

17. For general monitoring purposes of coastal waters (i.e. not in the heavily polluted areas in the vicinity of point sources), the following priority parameters (indicators) will be taken into account initially:

Total mercury in organisms and sediments;

Cadmium in organisms;

High-molecular weight halogenated hydrocarbons in organisms and sediments;

Petroleum hydrocarbons in water, sediments and oil residues (tar-balls) on sea-shores;

Faecal coliforms in recreational waters and edible bivalves;

Basic oceanographic and meteorological conditions.

In addition, standard physical and chemical parameters (salinity, oxygen, temperature, etc.) which may contribute to the interpretation of the results, will be monitored.

18. It is envisaged that, after three years, the following additional parameters (indicators) for monitoring of coastal waters will be added to the list:

Cadmium in sediments;

Organic mercury in organisms and sediments;

Total arsenic in organisms;

Selenium in organisms;

Lead in organisms;

Polynuclear aromatic hydrocarbons in organisms;

Additional organics (such as carcinogenic compounds) in organisms;

Radionuclides in organisms;

Faecal coliforms in sediments;

Pathogens in waters, sediments and bivalves;

Ecological parameters, such as productivity and community structure.

19. Taking into account the specificity of estuaries, the parameters (indicators) to be monitored will initially include:

Total mercury in water and suspended matter;

Cadmium in water and suspended matter;

High-molecular weight halogenated hydrocarbons in water and suspended matter;

Faecal coliforms in water and suspended matter;

Phosphorus in water and suspended matter;

Nitrogen in water and suspended matter;

BOD₅ in water;

COD in water.

20. It is envisaged that, after three years, the following additional parameters (indicators) for monitoring of estuaries will be added to the list:

Total arsenic in water and suspended matter;

Organic mercury in water and suspended matter;

Selenium in water and suspended matter;

Lead in water and suspended matter;

Polynuclear aromatic hydrocarbons in water and suspended matter;

Radionuclides in water and suspended matter;

Oil residues in water and suspended matter;

Pathogens in water;

Phenols in water.

C. Monitoring of reference areas, as defined by article I of the Convention, which are not under direct influence of pollutants from identifiable primary or secondary sources

21. The purpose of this monitoring is to provide information on the general trends in the level (concentration) of pollutants in the Mediterranean Sea.

22. The monitoring will be based on the work of governmentally-selected national research centres which will monitor areas falling within their jurisdiction. Monitoring of areas outside national jurisdiction will be agreed upon jointly by the Governments concerned.

23. The selection of reference areas will take into account the present knowledge of the prevailing conditions and other relevant regional programmes in the Mediterranean Sea.

24. Parameters (indicators) recommended to be monitored in the reference areas are primarily those listed in paragraph 17, with the exception of micro-organisms.

D. Monitoring of the transport of pollutants to the Mediterranean Sea through the atmosphere

25. The purpose of this monitoring is to establish the input (flux) of pollutants into the Mediterranean Sea through the atmosphere and thus to provide additional information on the pollution load reaching the Mediterranean Sea.

26. The monitoring will be based on the work of national research centres designated by their Governments.

27. The monitoring areas will include (i) areas directly influenced by identifiable sources of air pollution and (ii) reference areas not directly influenced by identifiable sources of air pollution.

28. Monitoring of areas outside national jurisdiction, or under shared jurisdiction by two States, will be agreed upon jointly by the Governments concerned.

29. Parameters (indicators) to be monitored will be selected on the basis of their relevance to annex I and annex II to the Land-Based Sources Protocol and of a feasibility study and research which will be carried out.

E. Sampling and analytical techniques

30. Sampling and analytical techniques used in the monitoring will be based on mandatory reference methods. Other methods could also be used, including remote sensing, subject to a satisfactory intercomparison.

31. Reference methods developed and tested during MED POL - PHASE I include:

(a) Determination of total mercury in edible tissue of fish by flameless atomic absorption spectrophotometry after liquid pressure decomposition of the organic material;

(b) Determination of total mercury in edible tissue of mussels by flameless atomic absorption spectrophotometry after liquid pressure decomposition of the organic material;

(c) Determination of DDTs in edible tissues of shrimps and fish by gas-liquid chromatography;

(d) Determination of DDTs in edible tissue of mussels by gas-liquid chromatography;

(e) Determination of total coliforms in sea-water by the membrane filtration culture method;

(f) Determination of faecal coliforms in sea-water by the membrane filtration culture method;

(g) Determination of faecal streptococci in sea-water by the membrane filtration culture method;

(h) Determination of faecal coliforms in shellfish (bivalves) by the multiple-test-tube method (MPN).

32. Additional reference methods will be developed and tested during MED POL - PHASE II (see paragraph 42 (a)).

33. Sampling frequency will depend on the purpose of monitoring.

34. All national research centres will participate in the continuing intercalibration of sampling and analytical techniques or in data quality control programmes.

F. Data analysis and dissemination

35. Data will be subjected to a preliminary quality control and analysis by the national research centres or other organizations collecting them.

36. Depending on their nature, the data will be reported through the national MED POL co-ordinators, (or directly, if so decided by the latter) in an agreed format and according to an agreed schedule, to UNEP's Mediterranean Action Plan Co-ordinating Unit, through the Regional Oil Combating Centre or through the relevant international organizations. On this level, using the computer facilities of the International Computing Center at Geneva, the second analysis of data will be carried out, including the control of their quality, (data validation), and the first integration of data will be achieved on a Mediterranean scale.

37. The Co-ordinating Unit, in consultation with the specialized organizations, may convene groups of experts, either periodically or on an ad hoc basis, to assist in the analysis, integration and interpretation of data, after consideration is given to the possibility of convening meetings of the Working Group for Scientific and Technical Co-operation.

38. Before submitting the data and the reports prepared by UNEP on the basis of these data to the Contracting Parties and other users, they will be reviewed by the Working Group for Scientific and Technical Co-operation.

39. The type of regular reports to be submitted to the Contracting Parties in connection with MED POL - PHASE II are:

(a) Type and amount of pollutants directly entering the Mediterranean Sea from land-based sources. The report will be based on the analysis and evaluation of data reported according to the provisions contained in paragraph 14 of this document. It will be submitted to the regular (biennial) meetings of the Contracting Parties.

(b) Quality of the marine environment in the areas monitored under MED POL - PHASE II. The report will consist of:

Collated reports on the quality of the areas monitored according to paragraphs 15-29 of this document, as submitted to the Co-ordinating Unit of the Mediterranean Action Plan from the national MED POL focal points in a commonly agreed format;

Analysis, evaluation and interpretation of the results contained in the reports on the areas monitored according to paragraphs 15-29 of this document.

The report will be submitted to the regular (biennial) meetings of the Contracting Parties.

(c) Results of selected research and study topics as defined in paragraph 42 of this document.

(d) Periodically updated report on the state of pollution of the Mediterranean Sea, indicating the major environmental problems, general trends in the pollution of the Mediterranean as well as the environmental problems which may face the Mediterranean basin in the future.

RESEARCH AND STUDY TOPICS

40. Only research and studies directly relevant to the achievement of the objectives of MED POL - PHASE II are envisaged.

41. Research and studies will be carried out by Mediterranean research centres and organizations primarily on a direct contractual basis or as a contribution from centres and organizations offered by the Contracting Parties.

42. Research and study topics included initially in the MED POL - PHASE II (sequence does not imply order of priority):

(a) Development of sampling and analytical techniques for monitoring the sources and levels of pollutants. Testing and harmonization of these methods on the Mediterranean scale and their formulation as reference methods. Substances listed in Dumping and Land-Based Sources Protocol priorities.

(b) Development of reporting formats required according to the Dumping, Emergency and Land-Based Sources Protocols.

(c) Formulation of the scientific rationale for the environmental quality criteria to be used in the development of emission standards, standards of use or guidelines for substances listed in annexes I and II of the Land-Based Sources Protocol in accordance with articles 5, 6 and 7 of that Protocol.

(d) Epidemiological studies related to the confirmation (or possible revision) of the proposed environmental quality criteria (standards of use) for bathing waters, shellfish-growing waters and edible marine organisms.

(e) Development of proposals for guidelines and criteria governing the application of the Land-Based Sources Protocol, as requested in article 7 of that Protocol.

(f) Research on oceanographic processes, with particular emphasis on surface circulation and vertical transport. Needed for the understanding of the distribution of pollutants through the Mediterranean and for the development of contingency plans for cases of emergency.

(g) Research on the toxicity, persistence, bioaccumulation, carcinogenicity and mutagenicity of selected substances listed in annexes of the Land-Based Sources Protocol and the Dumping Protocol.

(h) Research on eutrophication and concomittant planlton blooms. Needed to assess the feasibility of alleviating the consequences and damage from such recurring blooms.

(i) Study of ecosystem modifications in areas influenced by pollutants, and in areas where ecosystem modifications are caused by large-scale coastal or inland engineering activity.

(j) Effects of thermal discharges on marine and coastal ecosystems, including the study of associated effects.

(k) Biogeochemical cycle of specific pollutants, particularly those relevant to human health (mercury, lead, survival of pathogens in the Mediterranean Sea, etc.).

(l) Study of pollutant-transfer processes (i) at river/sea and air/sea interfaces, (ii) by sedimentation and (iii) through the straits linking the Mediterranean with other seas.

ASSISTANCE COMPONENT

43. In addition to the assistance envisaged through the activities of the Regional Oil Combating Centre, direct assistance in the fields of science, education and technology related to MED POL - PHASE II will be provided as described in the following paragraphs.

44. Individual and collective training will be provided for scientists and technicians in techniques (methods) required for their effective participation in monitoring and research envisaged in the framework of MED POL - PHASE II. This assistance will be in the form of fellowships, experts, workshops, seminars, study tours, grants for attendance at meetings, etc., and will cover training in analytical and sampling techniques, data processing, interpretation of results and various research topics.

45. Training for technicians and administrators will be organized in order to facilitate the application of the Land-Based Sources and the Dumping Protocols. The forms of training will be similar to those mentioned in the preceding paragraph.

46. A quality control programme will be a part of MED POL - PHASE II to ensure the highest degree of quality and of comparability of data. The national research centres participating in monitoring will receive standards and reference substances enabling them to participate in the continuing Mediterranean and global intercalibration exercise. Weaknesses detected through the quality control programme will be corrected through additional training and technical assistance, whenever necessary.

47. The common maintenance services for the sophisticated analytical equipment (atomic absorption spectrophotometers, gas chromatographs, etc.), developed during MED POL - PHASE I, will remain at the disposal of participants in PHASE II thus enabling the equipment used by national research centres to function properly.

48. As required and to the extent possible, standardized material and some equipment will be put at the disposal of national centres participating in MED POL - PHASE II to make it possible for them to participate fully in the monitoring and/or research programme.

CO-ORDINATION

49. The periodic meetings of the Contracting Parties will decide on the programme, approve its budget, review its progress and evaluate its results.

50. The over-all co-ordination and day-to-day organization of MED POL - PHASE II will be ensured by UNEP through the Co-ordinating Unit for the Mediterranean Action Plan, with the assistance of the international organizations. Such co-ordination shall be achieved as economically as possible.

51. A standing Working Group for Scientific and Technical Co-operation will be established by the Contracting Parties to assist them in their review of the progress of the programme and the evaluation of the results. It will advise UNEP on technical and policy matters related to the programme and prepare recommendations for submission through UNEP, as the secretariat of the Convention, to the meetings of Contracting Parties. The Group will consist of national MED POL co-ordinators designated by the relevant national authorities and will meet at least once a year.

52. The data quality control programme (paragraph 46) and maintenance services (paragraph 47) will be organized and carried out by competent international organizations or selected national institutions, including those carrying out these programmes on a global level, under the over-all guidance of the Mediterranean Action Plan Co-ordinating Unit.

53. In addition to the organizations belonging to the United Nations system, the collaboration with other competent international, regional and intergovernmental organizations in the implementation of MED POL - PHASE II will be actively pursued.

BUDGETARY CONSIDERATIONS

54. The financial resources needed for the work envisaged in the framework of MED POL - PHASE II will come from:

(a) Contracting parties to the Barcelona Convention (cash contributions through the Mediterranean Trust Fund and contributions in kind through participation of their national institutions);

(b) UNEP (cash contributions on a project-funding basis and contributions in kind through certain services);

(c) National institutions participating in the programme (contributions in kind through services, staff time, etc.);

(d) International organizations participating in and supporting the programme (contributions in kind through services, staff time, and activities related to the Mediterranean Action Plan);

(e) Voluntary contributions.

ANNEX II

LONG-TERM POLLUTION MONITORING AND RESEARCH PROGRAMME
OF THE MEDITERRANEAN SEA
(MED POL - PHASE II)

AGREEMENT

between

The Government of

and

The United Nations Environment Programme

AGREEMENT BETWEEN

The Government of
as signatory to the Convention for the Protection of the Mediterranean
Sea against Pollution; and

UNEP, as the organization designated by the Contracting Parties to the
Convention for the Protection of the Mediterranean Sea against
Pollution, as responsible for carrying out the secretariat functions
for the Convention on pollution monitoring relevant to the provisions
of the Convention and its related protocols.

1. The legal obligations of the Contracting Parties to the Convention for
the Protection of the Mediterranean Sea against Pollution and its
Related Protocols, and in particular

- article 10) of the Convention for the Protection of the
Mediterranean Sea against pollution, which entered into force
on 12 February 1978;
- article 4) of the Protocol Concerning Co-operation in
Combating Pollution of the Mediterranean Sea by Oil and other
Substances in Cases of Emergency, which entered into force on
12 February 1978; and
- article 8) of the Protocol for the Protection of the
Mediterranean Sea against Pollution from Land-Based Sources,
adopted on 17 May 1980,

require the establishment of a pollution monitoring system in
the Mediterranean Sea.

2. Based on the recommendations made at various intergovernmental and
expert meetings, a Long-Term Programme for Pollution Monitoring and
Research in the Mediterranean (MED POL - PHASE II) was formulated and
approved by the Second Meeting of the Contracting Parties to the
Convention for the Protection of the Mediterranean Sea against
Pollution and its Related Protocols and the Intergovernmental Review
Meeting of Mediterranean Coastal States on the Action Plan, held in
Cannes, 2-7 March 1981 (UNEP/IG.23.11, annex V; attached as annex I
to this agreement).

3. The present agreement is aimed at assisting the Government of
.....
in the implementation of the national monitoring programme, and
specifies in its Annex II the technical modalities of co-operation
between the signatories.

4. This agreement and its annexes shall be valid for an initial period of three years (1982 - 1984) and may be extended, amended, changed, or terminated by mutual consent of both parties.

For and on behalf of

The United Nations Environment
Programme

The Government of

Name

Name

Title

Title

Date

Date

ANNEX III

LONG-TERM POLLUTION MONITORING AND RESEARCH PROGRAMME
OF THE MEDITERRANEAN SEA
(MED POL - PHASE II)

TECHNICAL ANNEX

NATIONAL MONITORING PROGRAMME

OF

by

National Co-ordinator for MED POL

15 October 1981

TECHNICAL MODALITIES OF CO-OPERATION BETWEEN THE
GOVERNMENT OF AND UNEP ON
POLLUTION MONITORING RELEVANT TO THE PROVISIONS OF THE
CONVENTION FOR THE PROTECTION OF THE MEDITERRANEAN SEA AGAINST
POLLUTION AND ITS RELATED PROTOCOLS

1. Framework of activities

- 1.1 The Long-Term Programme for Pollution Monitoring and Research in the Mediterranean (hereinafter called MED POL PHASE II), attached as Annex I to this agreement, provides the basic framework for activities agreed to be carried out according to this agreement.
- 1.2 Any modifications made in MED POL - PHASE II at the forthcoming meetings of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution (hereinafter called Contracting Parties) should automatically apply in the context of this agreement.

2. Channels of communications

- 2.1 All formal communications related to the implementation of this agreement will be between
- the Co-ordinating Unit for the Mediterranean Action Plan (hereinafter called MED UNIT) on behalf of UNEP; and
 - on behalf of the Government of , as the designated National Co-ordinator for MED POL - PHASE II (hereinafter called National Co-ordinator).
- 2.2 The correspondence between the MED UNIT and the National Co-ordinator shall be routinely copied to UNEP national focal point for the Mediterranean Action Plan in, which is and to

3. Responsibilities of the National Co-ordinator

- 3.1 To ensure the implementation of the national monitoring programme and to co-ordinate the efforts of the designated national MED POL collaborating institutions in carrying out the monitoring.
- 3.2 To channel all the formal communications between the MED UNIT and the national MED POL collaborating institutions and to report to the MED UNIT on the progress achieved by the national monitoring programme according to the agreed format and schedule.

- 3.3 To provide the MED UNIT with the data submitted by the national MED POL collaborating institutions, ensuring the compliance with the agreed formats and schedules.
- 3.4 To assess and report as required on the overall amounts of pollutants discharged and dumped from all national sources.
- 3.5 To assess and report on the state of the pollution in the areas monitored by their national MED POL collaborating institution.
- 3.6 Through the regular meetings of the Working Group on Scientific and Technical Co-operation (WGSTC), as a member of the group, to advise the MED UNIT on technical and policy matters related to the Monitoring Programme and to review the technical reports prepared by the MED UNIT before submission to the Contracting Parties.

4. Responsibilities of the MED Co-ordinating Unit

- 4.1 To be responsible to the Contracting Parties acting on behalf of UNEP (the secretariat of the Barcelona Convention) for the overall co-ordination of the MED POL - PHASE II activities.
- 4.2 To exercise, in consultation with the Co-operating Agencies, the day-to-day co-ordination of the work carried out by the national MED POL collaborating institutions.
- 4.3 To collect, evaluate, process and disseminate the results of MED POL - PHASE II, and to assess on the state of pollution of the Mediterranean Sea in collaboration with the relevant Co-operating Agencies.
- 4.4 To convene the WGSTC and groups of experts, in consultation with the relevant Co-operating Agencies, either periodically or on an ad hoc basis, to assist in the analysis, integration and interpretation of MED POL - PHASE II data.
- 4.5 To exercise the overall guidance on the data quality control and maintenance service organized and carried out by the competent Co-operating Agencies or selected national institutions.

5. Activities agreed to be carried out

A. Monitoring of sources of pollution to provide information on the

type and amount of pollutants reaching the marine environment from

coastal sources

A.1. Identification of the sources which shall be monitored.

A.1.1. Sources monitored through rapid assessment methods:

All discharges of pollutants from land-based sources and dumping operations, either in normal operations, in emergency situations or released accidentally into the sea.

A.1.2. Sources with direct monitoring:

A.1.2.1. All major effluents in the following urban agglomerations:

A.1.2.2. All other effluents in the following areas (defined under B.1):

A.1.2.3. Effluents of the following major polluting industries discharging to the sewerage systems existing in A.1.2.1. and A.1.2.2:

Name	Location	Main Activity
------	----------	---------------

(To be filled in by National Co-ordinator)

A.2 Parameters which shall be monitored at each of the sources specified in A.1.

A.2.1. Sources monitored through rapid assessment methods:

Selected substances of the ones referred to in Annexes I and II of the land-Based Sources Protocol and in Annexes I and II of the Dumping Protocol.

A.2.2. Sources with direct monitoring:

Pollutants to be monitored (see Section A.5 for description of methods and 5.2 of Appendix)
(in tm)

Source name or number	Type of source	Annual Discharge (m ³)	BOD	COD	TSS	VSS	N	P	FC	DET	PHE	PH	Hg	Cd	Pb	Cr	Zn	HH	RAD
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1/

1/ Enter number of institution responsible for the monitoring (see section A.4).

A.3 Working schedule.

A.3.1. Rapid assessment monitoring during 1982.

A.3.2. Sources with direct monitoring: The final schedule will be prepared after a preliminary survey of the "production cycles". Tentatively the sampling will be carried out monthly, with at least 24 consecutive hourly samplings.

A.4 Institutions which shall carry out the monitoring with indication of individual functions.

List all institutions participating in the monitoring of sources.
(Number to the left should be entered in appropriate box under A.2).

Number	Name of Inst.	Address	Responsible Investigator	Telephone No. and Telex No.
--------	---------------	---------	--------------------------	-----------------------------

1.

2.

3.

4.

5.

A.5 Brief description of sampling and analytical techniques if different from the analytical methods proposed by MED UNIT.

- Total discharge of effluent waters (WHO)
- BOD (WHO)
- COD (WHO)
- TSS (WHO)
- VSS (WHO)
- Phosphorus (WHO)
- Nitrogen (WHO)
- Faecal coliforms (WHO)
- Detergents (WHO)
- Phenols (WHO)
- Petroleum hydrocarbons (IOC/UNESCO)
- Hg (WHO)
- Cd (WHO)
- Pb (WHO)
- Cr (WHO)
- Zn (WHO)
- High-molecular weight halogenated hydrocarbons (IOC/UNESCO)
- Selected Radionuclides (IAEA)

A.6 Data and progress reporting

- A.6.1. An inventory of all pollution sources will be submitted to MED UNIT by the end of 1982 and updated at the end of every year.
- A.6.2. A report of the overall amounts of pollutants reaching the Mediterranean from sources located in the country as estimated through the rapid assessment method will be submitted to MED UNIT by the end of 1982 and updated at the end of every year.
- A.6.3. Data reports from the directly monitored effluents will be submitted to MED UNIT as they become available.
- A.6.4. Progress reports will be submitted to MED UNIT by the National Co-ordinator for MED POL in March and September every year beginning March 1982.

All the reports should be adapted to the formats and guidelines supplied by MED UNIT.

B. Monitoring of the coastal waters, including estuaries, within the

limits defined by article 1 of the Barcelona Convention and by article 3

of the Land-Based Sources Protocol, under the direct influence of

pollutants from identifiable primary (e.g. outfalls, discharge or

coastal dumping points) or secondary (rivers and other watercourses)

sources

B.1 Identification of the areas and stations which shall be monitored.
(Attach maps showing the boundaries of all the areas and the sampling
stations (use scale 1:25.000)).

Area No.	Denomination	Geographical boundaries (lat. long.)
<hr/>		

B.2 Parameters which shall be monitored at each of the stations. (Use as many forms as areas are specified under B.1).

Area no. (same number as in B.1).

Station	Type of	Sampling	Matrix	Parameters
Name or number <u>1/</u>	station <u>2/</u>	depth <u>6/</u>	<u>3/</u>	Hg Cd Hh OS DH TR SP&C FC BOM

5/

1/ see attached map for situation of stations

2/ E = estuarine
CP = coastal polluted

CR = coastal reference
OR = open-sea reference

3/ SW = sea-water
SM = suspended matter
SD = sediments
SS = sea-shore

4/

MS = Mullus surmuletus
TU = Thunnus thynnus thynnus
XI = Xiphias gladius
PA=parameaneus sp.
CA = Carcius mediterraneus
HG. = total mercury
Cd = total cadmium
PH = polyhalogenated hydrocarbons
OS = oil slicks
DH = dissolved/dispersed petroleum hydrocarbons
TR = tar (floating or on sea-shores)
SP&C = Standard physical and chemical parameters

PH = phytoplankton
ZP = zooplankton
BE = Benthos
MY = *Mytilus galloprovincialis*
PE = *Perna perna*

FC = faecal coliforms
BOM = Basic oceanographic and meteorological observations
5/ Number of responsible institution as appears in Section B.4
6/ For estuarine waters use salinity minimum or maximum

B.4 Institutions which will carry out the monitoring with indication of individual functions.

List all institutions participating in the monitoring programme.
(Number to the left should be entered in appropriate box under 2).

Number	Name of Inst.	Postal Address	Responsible Investigator	Tel No. and Telex No.
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8.5 Brief description of sampling and analytical techniques if different from the methods proposed by MED UNIT.

- Hg in water (UNESCO,)
- Hg in organisms (FAO,)
- Hg in suspended matter (UNESCO,)
- Hg in sediments (IAEA/UNESCO,)
- Cd in water (UNESCO/IAEA,)
- Cd in organisms (FAO,)
- Cd in suspended matter (IAEA/UNESCO,)
- Polyhalogenated hydrocarbons in water (IAEA,)
- Polyhalogenated hydrocarbons in organisms (FAO,)
- Polyhalogenated hydrocarbons in suspended matter (IAEA,)
- Polyhalogenated hydrocarbons in sediments (IAEA,)
- Oil slick observations (IOC/IAEA,)
- Dissolved/dispersed hydrocarbons (IOC/IAEA,)
- Petroleum hydrocarbons in sediments (IOC/IAEA,)
- Floating tar balls (IOC/IAEA,)
- Tar on beaches (IOC,)
- Standard physical and chemical parameters (IOC/UNESCO, WHO, WMO,)
- Faecal coliforms in water (WHO,)
- Faecal coliforms in organisms (WHO/FAO,)
- Faecal coliforms in sediments (WHO,)
- Basic oceanographic and meteorological observations (IOC/UNESCO, WHO, WMO)
- Total phosphorus in water (WHO,)
- Total nitrogen in water (WHO,)
- Total phosphorus in suspended matter (WHO,)
- Total nitrogen in suspended matter (WHO,)
- BOD_5 in water (WHO,)
- COD in water (WHO,)

B.6 Data and progress reporting.

- B.6.1. Data reports, in accordance with the agreed formats, and guidelines, will be submitted to MED UNIT as soon as they become available.
- B.6.2. Progress reports will be submitted to MED UNIT by the National Co-ordinator for MED POA in March and September every year beginning March 1982.

All the reports should be adapted to the formats and guidelines supplied by MED UNIT.

C. Monitoring of reference areas, as defined in article I of the Convention

which are not under direct influence of pollutants from identifiable

primary or secondary sources

National Co-ordinators should inform of all on-going or prospective cruises in the Mediterranean Sea which might contribute to the objectives stated in the heading, indicating:

- C.1 Identification of stations which shall be visited from those proposed in Table 8 of Guidelines.
- C.2 Parameters and matrices which shall be monitored from those proposed in Table 9 of Guidelines.
- C.3 Cruise plan
- C.4 Participants in the cruise with identification of their functions
- C.5 Brief description of sampling and analytical techniques
- C.6 Data and cruise reporting

D. Assistance component

D.1 Intercalibration and quality control programme

Identification of individual analysts responsible for each parameter listed under B.2 and C.2 which shall participate in the mandatory intercalibration and quality control programme, i.e. give name of analyst, institution, address and telephone number.

Name	Institution	Telephone No.	Parameter	Matrix
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D.2 Maintenance service

Identification of sophisticated analytical equipment which might be covered by the common maintenance service with reference to the use and localisation:

Instrument	Make and model	Parameters	Inst. No.
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D.3 Technical assistance required or offered.

D.4 Training required or offered

D.5 Contribution from MED UNIT (as agreed at the First Meeting of the WG STC).

LONG-TERM POLLUTION MONITORING AND RESEARCH PROGRAMME

MED POL - PHASE II

Guidelines for the Preparation of National Monitoring Programmes

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1. Introduction

A good monitoring programme is not the one producing the largest number of data, not even that carried out with the most sophisticated analytical techniques, but a purposeful one. That is, data produced should illustrate the status of the system monitored and adequate models of this system should thus be available before monitoring programmes can be established.

Unfortunately, previous knowledge of any given system, be it estuarine, coastal or open-sea, is never sufficient to allow such an exercise to be successful at the first run. Yet, simple general criteria should be found in marine sciences (hydrodynamics, marine ecology, etc.) that allow development of adequate monitoring strategies for a given area.

The pollutant acceptance capacity of a coastal system depends on the flushing characteristics of the water body, the sedimentation rates, the trophic pathways of its ecosystem, etc. Individual pollutants behave in a different way, since the processes to which they are submitted are different from one another.

The socio-economical characteristics of the area monitored, the geographical distribution of pollutant sources (rivers, effluents, etc.), the general meteorological and hydrographic conditions and the type of ecosystem present, should also be taken into account when preparing specific monitoring programmes.

Time and space distribution of the sampling should both take into account the system's natural variability.

In addition to these factors, the following basic questions should receive specific answers in order to establish a meaningful monitoring programme:

- (i) criteria of use of the waters in the area;
- (ii) pollutants that give rise to major problems;
- (iii) elements available or envisaged in order to exert control on the environmental quality.

Monitoring programmes should carefully follow precise sampling strategies and schedules and should adopt common sampling and analytical techniques as well as homogeneous data handling protocols.

The following guidelines are intended to provide the National Co-ordinators for MED POL with common criteria on which to base the preparation and implementation of their National Monitoring Programmes.

They were prepared by the Mediterranean Co-ordinating Unit, in close collaboration with the various Co-operating Agencies, on the basis of previous experience gained through the pilot phase of MED POL; the indications given by the Meeting of Financial and Programming Experts of the Mediterranean Coastal States, Geneva, 26-30 January 1981, as adopted by the Second Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its related protocols, Cannes, 2-7 March 1981; and taking into account the requirements of the Dumping and Land-Based Sources Protocols.

2. Monitoring strategies

Four different but inter-related monitoring strategies were proposed by UNEP and adopted as parts of the Long-Term Pollution Monitoring and Research Programme (Annex V, UNEP/IG.23/11).

- A. Monitoring of the sources of pollution
- B. Monitoring of the coastal waters including the estuaries
- C. Monitoring of the (open-sea) reference areas
- D. Monitoring of the transport of pollutants through the atmosphere

Strategy A intends to estimate the overall pollutant load entering the sea through point sources (effluents, dumping operations, etc.), and to assess on the cycles of specific pollutants in the marine system by providing information on the location and characteristics of the discharges.

Strategy B intends to assess on the state of the receiving system, in particular on the quality of the waters, and the sanitary conditions of both recreational waters and biota used for human consumption.

Strategy C intends to assess on the general long-term trends of the pollution levels in the Mediterranean Sea and eventually on the direct influence that pollution of the coastal waters may have on the waters at large.

Strategy D, still in a developmental stage due to the lack of previous experience, is intended to assess mainly on the transport of pollutants from diffuse, mostly land-based, sources through the atmosphere and into the sea, though the reverse process should not be neglected. (This part of the monitoring programme will not be implemented before some preparatory activities, considered for the time being as part of the research activities connected to para. 42(1), Annex V, UNEP/IG.23/11).

3. Selection of monitoring sites

Each of these strategies gives rise to different criteria for the selection of the sites to be monitored.

A - According to the sources:

- rivers
- large cities
- industrial compounds
- harbours
- heavy maritime operations
- nuclear installations

B - According to the uses:

- recreational waters
- shellfish growing waters
- aquaculture waters
- fisheries grounds
- coastal reference areas

C - According to the hydrographic characteristics:

- straits and channels
- estuaries
- central gyres

Selection of the sites to be monitored should be made by national authorities in consultation with the MED UNIT and the Co-operating Agencies.

A. Monitoring of sources of pollution to provide information on the

type and amount of pollutants reaching the marine environment from

coastal sources

A.1 Selection of sources of pollutants which shall be monitored.

A.1.1 All discharges of pollutants into the coastal waters from land-based sources or dumping directly into the sea, either in normal operations, dumped in emergency or released accidentally, should be quantified in order to assess the pollution load reaching the Mediterranean Sea.

A.1.2 All effluents discharging in the areas selected for the monitoring of their coastal waters (see section B.1) should be directly monitored in order to establish the pollution load of the area and to contribute to the understanding of the biogeochemical cycles controlling the pollutant levels in the marine system.

A.1.3 All effluents from cities whose populations are 100,000 inhabitants or above should be directly monitored. Table 1 shows a list of cities with such characteristics existing around the Mediterranean Sea.

A.1.4 Effluents from the major industries whether they discharge directly into the sea or through urban sewerage systems should be directly monitored.

A.2 Parameters which shall be monitored

A.2.1 In the case of indirectly monitored pollutants (covered by A.1.1) discharged or dumped into coastal areas, those substances listed in Annexes I and II to the land-based sources and dumping protocols, which are included in the reporting forms (see A.6).

A.2.2 In the case of directly monitored effluents (covered by A.1.2) discharging into the areas selected for monitoring of the coastal waters (see B.1), the parameters selected for the monitoring of coastal waters are those listed in Table 5.

A.2.3 In the case of directly monitored urban and industrial effluents, (covered by A.1.3 and A.1.4), the pollutants listed in Table 2 should be monitored in addition to those included in A.2.2 if they are located in areas covered by B.1.

A.3 Sampling schedule

A.3.1 Integrated and peak samples, continuously or at suitable intervals, should be taken for all effluents directly monitored. A study of the "production" cycles should be made before a definitive sampling schedule is adopted.

A.3.2 Effluents directly discharging into monitored coastal areas should be sampled following the schedule established for the monitoring of coastal waters (see section B.3).

A.4 Institutional arrangements

The National Co-ordinators should identify the institutions and/or experts that will deal with the indirect monitoring and with the direct monitoring of point sources with clear indication of their respective functions (see, for example, B.4).

A.5 Sampling and analytical techniques

MED UNIT in consultation with the Co-operating Agencies shall provide detailed descriptions of reference methods for all parameters included in A.2. Alternative techniques might be used provided they are subject

to intercalibration exercises. A brief description of such alternative techniques should be given by the National Co-ordinators in the Technical Annex to the Agreement.

A.6 Data and progress reporting

- A.6.1 A detailed inventory of all point sources of pollution with complementary information, stating the type and amounts of pollutants discharged, treatment given to the discharges, etc., should be reported at the end of 1982. An up-dating of this inventory, including all the authorizations granted, should be prepared at the end of every year. (Art. 13.2 (a) LBS Protocol).
- A.6.2 All special dumping permits granted should immediately be submitted to MED UNIT and all general dumping permits granted should be submitted to the MED UNIT at the end of every year. (Art. 14.2 Dumping Protocol).
- A.6.3 Information regarding the actual amounts, nature of the wastes, or other matter dumped under each of the special and general permits, and the actual location and method of dumping should be submitted to MED UNIT at the end of every year.
- A.6.4 Data reports from directly monitored effluents should be submitted to MED UNIT immediately after they are prepared.
- A.6.5 Reports of overall amounts of pollutants discharged and/or dumped by each country should be submitted to MED UNIT by National Co-ordinators in March and September every year.

All forms for reporting of dumping permits and dumping operations, for direct monitoring data reporting and for overall pollutant load reporting, will be provided by the MED UNIT according to the agreed formats. (See Appendix I).

- B. Monitoring of the coastal waters, including estuaries, within the

limits defined by Article 1 of the Barcelona Convention and by Article

3 of the Land-Based Sources Protocol, under the direct influence of

pollutants from identifiable primary (e.g. outfalls, discharge or

coastal dumping points) or secondary (rivers and other water courses)

sources.

B.1 Areas and stations which shall be monitored

B.1.1 Estuarine areas

River waters often carry in solution, or with the suspended matter, large amounts of the pollutants listed in annex I and II of the Land-Based Sources Protocol. Monitoring of these pollutants should be carried out at the river mouth, both in the water and in the suspended matter. However, the great difficulties encountered in measuring the flow and in sampling the fresh water after it has reached the sea, advises these operations to be carried out in the zero salinity waters of the coastal ponds normally found in Mediterranean deltas.

Table 3 contains a list of the major rivers and estuaries which should be monitored.

B.1.2 Coastal areas

Monitoring of coastal areas requires a good knowledge of the sources of pollutants, of the ecological characteristics of the current regime and of the water-mass structure under the prevailing meteorological conditions. Fresh-water (salinity) dispersion processes (plumes) should be taken well into account. Near-shore sediment transport should not be neglected, especially in the wave-breaking area. Amounts of specific pollutants discharged (microbiological, metals, polyhalogenated and petroleum hydrocarbons, nutrients, organic matter, etc) should be determined in close relationship with the meteorological and hydrodynamic conditions.

Table 4 (see also figure 1) contains a list of coastal areas which should be monitored.

B.1.3 Coastal reference areas

Not all coastal areas are equally subject to pollution. Distances from major rivers, cities, harbours or tourist resorts result, in general, in low pollutant levels. However, some of the substances normally considered as pollutants have background natural levels which may not be negligible. These background levels should be object of monitoring in the so called coastal "reference" areas. These areas should be found in relatively undisturbed zones, if possible upstream of the major dominant currents, and within considerable distances of identifiable pollution sources. Selection of these areas is left to the National Co-ordinating

The sampling stations should be numerous and closely related to the sources of pollutants and to the water uses. In the cases above, the

detailed description of the areas selected should include the location of the stations to be monitored in each of the selected areas in geographical co-ordinates and in a map of the area (scale 1:25,000).

B.2 Parameters and matrices which shall be monitored at each of the

areas and stations specified under B.1.

Mandatory parameters and matrices are those listed in para. 17 of Annex V to the report of the Second Meeting of Contracting Parties (Cannes, 2-7 March 1981) and should be sampled whenever possible even in those cases in which there is evidence of them being at background levels, in which case the area might be considered as a reference area for the purpose of that particular parameter. Parameters under para. 18 of Annex V, for the time being, should be considered as optional. Table 5 indicates the proposed parameters and matrices to be monitored.

B.3 Sampling schedule

The Mediterranean Sea is strongly affected by seasonal changes, therefore monitoring of biota and sediments can be carried with a seasonal (or quarterly) sampling frequency.

For the more dynamic, dissolved and suspended matrices, a weekly to monthly frequency might be desirable. Table 6 indicates the sampling schedule proposed for each of the parameters and matrices.

B.4 Institutions which will carry out the monitoring

Although it is expected that the research centers that had already participated in MED POL - PHASE I will be the basis for the long-term MED POL - PHASE II programme, other institutions involved in health, hygiene, sanitary and other such related activities should be involved, in order to have a better geographical coverage, provided they are identified, they perform well in intercalibration exercises and a strict control of their performance be made through local or international experts.

Table 7 shows a list of all participating institutions in MED POL - PHASE I with indication of activities developed.

B.5 Sampling and analytical techniques

MED UNIT in consultation with the Co-operating Agencies shall provide detailed descriptions of reference methods for all parameters included in B.2. Alternative techniques might be used provided they are subject to intercalibration exercises. A brief description of such alternative techniques should be given by the National Co-ordinators in the Technical Annex to the Agreement.

.6 Data and Progress Reporting

.6.1 Data reports prepared by responsible scientists should be submitted to MED UNIT, through the National Co-ordinators or directly, if so decided by prior agreement, immediately after they are prepared.

B.6.2 Progress reports should be submitted by the National Co-ordinators for MED POL in March and September every year.

C. Monitoring of reference areas, as defined by Article I of the

Convention, which are not under direct influence of pollutants from

 identifiable primary or secondary sources.

C.1 Selection of areas which shall be monitored.

Selection of the stations to be monitored should be made from among those stations identified by MED UNIT and the Co-operating Agencies, taking into account the stations proposed for the Joint Scientific Programme of ICSEM, which were chosen on the basis of careful considerations of the hydrographical conditions of the Mediterranean Sea (see Table 8 and Figure 2).

Table 8. Stations selected for monitoring of (open-sea) reference areas

(i) Strait stations

SR-G	36 10'N	04 30'W	(Strait of Gibraltar)
SR-S	38 30'N	09 00'E	(Sardinian Channel)
SR-T	37 50'N	11 20'E	(Sicilian Channel)
SR-A	41 30'N	18 00'E	(Straight of Otranto)
SR-KW	36 00'N	23 30'E	(Crete west)
SR-KE	35 00'N	27 00'E	(Crete east)

(ii) Off-estuary stations

ET-E	40 30'N	02 00'E	(Ebro)
ET-R1	42 00'N	04 45'N	(Rhone)
ET-R2	42 30'N	04 45'E	(Rhone)
ET-P	45 00'N	13 00'E	(Po)
ET-N	32 20'N	33 10'E	(Nile)

Table 8 cont.

(iii) Gyre-centre stations

GY-L	43 05'N	08 00'E	(Ligurian Sea)
GY-W	40 00'N	06 30'E	(Western Basin)
GY-T	39 40'N	12 00'E	(Tyrrhenian Sea)
GY-I	37 00'N	19 00'E	(Ionian Sea N)
GY-S	34 00'N	17 00'E	(Ionian Sea S)
GY-E	34 00'N	26 00'E	(Levantine Basin W)
GY-V	34 00'N	30 00'E	(Levantine Basin E)

Additional stations could also be included provided that their hydrographical conditions are well known.

C.2 Parameters and matrices which shall be monitored -

Parameters recommended to be monitored in the open-sea reference areas are primarily those listed below: (para 17, Annex V, UNEP/IG.23/11).

- Total mercury in planktonic and benthic organisms and in suspended matter and in sediments;
- Cadmium in planktonic and benthic organisms;
- High-molecular weight halogenated hydrocarbons in planktonic and benthic organisms, and in sediments;
- Petroleum hydrocarbons in seawater and in sediments;
- Observations of oil slicks and collection of floating tarballs.

In addition, standard physical and chemical parameters (temperature, salinity, dissolved oxygen, etc.) will be monitored at time of sample collection. These parameters will be measured at standard depths.

3. Sampling schedule

Frequency of sampling will depend on availability of research vessels. Nevertheless it is recommended that the samples would be taken on the above-mentioned stations at least once a year, and the same station should be reoccupied as frequently as possible.

4. Participants in the cruises.

For execution of the programme, research vessels of the Mediterranean coastal States will be used. On-going national, bilateral or international programmes should be requested to participate in the monitoring of reference areas. In particular, Spain, France, Italy, Yugoslavia and Greece have already made specific proposals.

Ships of opportunity when working in the Mediterranean Sea should also be taken into consideration. Their participation in the programme should be negotiated with the authorities of the country the ship is coming from.

Cruises on the open Mediterranean Sea will be organized on a basis of negotiations between interested countries and co-operating agencies and be co-ordinated by MED UNIT.

Organization of the cruises shall be decided by all interested parties:

- Representatives of research vessel operating agencies of the Mediterranean Governments interested;
- National Co-ordinators for MED POL of the Governments interested;
- Representatives of MED UNIT and Co-operating Agencies, and of other international and intergovernmental organizations active in the Mediterranean Sea;
- Scientific experts designated by the interested governments and by the MED UNIT and Co-operating Agencies.

Since the cost of using oceanographic vessels is high and considerable ship-time is required for executing these programmes, it is imperative that the monitoring of reference areas be well co-ordinated with other ongoing international and/or intergovernmental programmes.

5. Sampling and analytical techniques

Sampling and analytical techniques used in the monitoring will be based on reference methods provided by the MED UNIT in co-operation with IOC and IAEA. Other methods might also be used provided they are subject to intercalibration with the reference methods.

6. Data and Progress Report

Data reporting should be made after each cruise in accordance with formats developed by MED UNIT and Co-operating Agencies. (See Appendix). The standard oceanographic parameters should follow the rules of the International Oceanographic Data Exchange System IODE.

Table 1. Mediterranean cities with population of 100,000 or more monitored

	<u>Population in thousands</u>
Algeria	
- Mostaganem	100
- Oran	465
- Annaba	226
- El Wadjar	192
- Skika	123
- Alger	1,269
Egypt	
- Alexandria	2,397
- Dumyat	103
- Port Said	310
France	
- Nice	359
- Toulon	184
- Marseille	916
Greece	
- Patras	121
- Athens	2,540
- Thessaloniki	557
Israel	
- Gaza	118
- Tel-Aviv	384
- Jaffa	116
- Haifa	225
Italy	
- Rome	2,874
- Napoli	1,221
- Genova	804
- La Spezia	122
- Pisa	104
- Livorno	178
- Sassari	112
- Cagliari	238

Table 1 cont.

Italy cont.

Population in thousands

- Messina	263
- Palermo	666
- Bari	380
- Pescara	134
- Ancona	107
- Rimini	125
- Ravenna	138
- Venezia	365
- Trieste	270
- Siracusa	119
- Catania	399
- Reggio-Calabria	177
- Taranto	241
Lebanon	
- Beirut	939
Libya	
- Tarabulus	670
- Misratah	139
- Benghazi	400
Morocco	
- Nador	501
- Al-Hoceima	257
Spain	
- Ceuta	136
- Melilla	134
- Malaga	400
- Almeria	127
- Cartagena	158
- Valencia	714
- Castellon de la Plana	110
- Hospitalet de Llobregat	242
- Barcelona	1,745
- Badalona	202
- Alicante	218
- Palma de Mallorca	262
Syria	
- Latakia	200
Tunisia	
- Grand Tunis	874
- Sfax	171

Table 1 cont.

Population in thousands

Turkey

- Alexandretta	103
- Hatay	124
- Mersiu	152
- Antalya	140
- Izmir	858

Yugoslavia

- Rijeka	132
- Split	184

Table 2. Pollutants recommended to be determined in directly monitored effluents

<u>Volume:</u>	<u>Metals:</u>
Total discharge	Mercury
	Cadmium
<u>Organic matter:</u>	Lead
BOD ₅	Chromium
COD	Zinc
TOC	<u>Suspended matter:</u>
<u>Nutrients:</u>	Total suspended solids (TSS)
Total phosphorus	Volatile suspended solids (VSS)
Total nitrogen	<u>Pesticides:</u>
<u>Specific organics:</u>	High-molecular weight halogenated hydrocarbons (HH)
Detergents	<u>Radioactivity:</u>
Phenols	Selected radionuclides
Petroleum hydrocarbons	

Table 3. Main rivers discharging into the Mediterranean Sea

Egypt	Italy
- Nile	- Arno
	- Tevere
France	- Po
- Rhône	- Adige
	Spain
Greece	- Jucar
- Akhelos	- Ebro
- Pinios	
- Aliakmon	Turkey
- Axios	- Buyuk Menderes
- Strimon	- Manavgat
- Nestos	- Seyhan
- Evros	- Ceyhan
	Yugoslavia
	- Neretva

Table 4. Coastal Areas which are proposed for monitoring

Algeria

Area off Oran
Bay of Algiers
Gulf of Arzew

Cyprus

Larnaca Bay
Akrotiri Bay

Egypt

Area off Alexandria
Area off Port Said

France

Area off Banyuls
Area off Sète
Gulf off Marseilles, including
Rhône river mouth
Area off Toulon
Area off Cannes
Area off Nice

Greece

Gulf of Patras
Area off Athens
Gulf of Thessaloniki
Area off Alexandropolis

Israel

Area off Tel-Aviv
Area off Haifa

Italy

Gulf of Genova
Coastal areas off Tuscany
Coastal areas off Rome including
Tiber river mouth
Gulf of Naples
Gulf of Cagliari
Straits of Messina

Malta

Comino channels
Mellieha Bay
St. Julian's Bay
Valletta Harbour

Morocco

Area off Casablanca
Area off Tanger
Area off Al-Hoceima

Monaco

Area off Monaco

Spain

Bay of Cadiz
Bay of Algeciras
Area off Malaga
Area off Cartagena
Area off Alicante
Gulf of Valencia
Ebro river mouth
Area off Tarragona
Area off Barcelona
Bay of Palma de Mallorca

Syria

Area off Latakia

Tunisia

Gulf of Tunis
Gulf of Hammamet
Gulf of Gabès

Turkey

Area of the Dardanelles
Gulf of Izmir
Gulf of Antalya
Area off Mersin

Table 4 cont.

Area off Palermo
Gulf of Taranto
Area off Bari
Coastal areas of Emilia Romagna,
including Po river mouth
Gulf of Venice
Gulf of Trieste

Lebanon

Area off Beirut

Libya

Area off Tripoli

Gulf of Iskenderun

Yugoslavia

Istrian coast
Bay of Rijeka
Middle Adriatic coast
Area off Dubrovnik

Table 5. Parameters and matrices selected for monitoring of coastal waters including estuaries

<u>Matrix</u>	<u>Depth</u>	<u>Parameter</u>	
<u>Water</u>	- Estuaries	(F.C.	
		(Hg	
		(Cd	
		(H.H.	
		(P	
		(N	
		(BOD ₅	
	(COD		
	- Coastal stations	(Basic oceanographic	
		(and meteorological	
		(observations	
		- surface film	(F.C.
		(oil slick observations	
- 0-20 cm		(F.C.	
(tar balls			
- 1 m	(diss./disp. hydrocarbons		
- 2 - 3 m	(F.C.		
- stand. depths	(stand. phys. and chem.		
(parameters			
<u>Suspended matter in estuaries</u>			
	- Salinity minimum	(Hg	
	- Salinity maximum	(Cd	
		(H.H.	
		(P	
		(N	
<u>Sediments in coastal stations</u>			
	- top 5 to 10 cm layer	(Hg	
		(H.H.	
		(F.C.	

Table 5 cont.

Biota

<u>Mytilus galloprovincialis</u> or substitute	(	Hg
	(	Cd
	(	H.H.
<u>Mullus barbatus</u> or substitute	(	Hg
	(	Cd
	(	H.H.
<u>Thunnus thynnus thynnus</u> or <u>Xiphias gladius</u>	(	Hg
	(	Cd
<u>Parapenaeus sp.</u> or <u>Carcinus mediterraneus</u>	(	Hg
	(	Cd
	(	H.H.
<u>All edible bivalves</u>	-	F.C.

H.H. - High-molecular weight halogenated hydrocarbons

F.C. - faecal coliforms

Table 6. Sampling schedule

Pollutant	Month											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Total Mercury ¹⁾			X			X			X			X
Cadmium ¹⁾			X			X			X			X
High Mol. w. Polyhalog. Hydroc. ¹⁾			X			X			X			X
Petroleum hydrocarbons			X			X			X			X
Standard phys. & chem. parameters ⁴⁾	X	X	X	X	X	X	X	X	X	X	X	X
Faecal colif. ²⁾	X		X	X	X	X	X	X	X		X	
Phosphorus ²⁾			X			X			X			X
Nitrogen ²⁾	X		X	X	X	X	X	X	X		X	

Table 6 cont.

Pollutant	Month											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
BOD ₅ ²⁾			X			X			X			X
CO ₂ ²⁾	X		X	X	X	X	X	X	X		X	
Basic ocean. & meteor. ²⁾	X		X	X	X	X	X	X	X		X	

- 1) All sampling in a large area should be done at once and then store samples.
- 2) All sampling should be done in one day and then process samples.
- 3) Commercial bivalves should be sampled also in II, X and XII.
- 4) Recommended but not less than four times a year in connexion with the other parameters.

Institutions which participated in MED POL - PHASE I
and indication of the monitoring activities in which they were involved

	Metals in biota							Polychlorinated hydrocarbons in biota				Petroleum Hydrocarbons				Coastal Quality Control			
	Hg	Cd	Cu	Pb	Mn	Se	Zn	Other	PCB	DDT	DDD	DDE	DIE	Other	d/d		os	fl	lb
National Institute																			
Inst. of Bio-organic Chemistry BARCELONA																			
Inst. of Chem. of Sarria BARCELONA	X	X	X	X	X	X	X	X	X	X	X	X							
<u>SYRIA</u> Cent. for Marine Research of Latakia DAMASCUS																			
<u>TUNISIE</u> Inst. national scientifique et technique d'Océanographie SALAHBO	X																		

Table 7

Institutions which participated in MED POL - PHASE I and indication of the monitoring activities in which they were involved

	Metals in biota							Polychlorinated Hydrocarbons in biota					Petroleum Hydrocarbons					Coastal Quality Control		
	Hg	Cd	Cu	Pb	Mn	Se	Zn	Other	PCB	DDT	DDD	DDE	DIE (1)	Other	d/d (2)	os (3)	ft (4)	fb (5)	sa (6)	ra (7)
National Institute																				
Lab. Central TUNIS																				
Inst. Pasteur TUNIS																			X	X
<u>TURKEY</u>																				
Hydrobiological research Inst. ISTANBUL	X									X	X	X	X	X						
Marine Science Dept. ERDEMLI - ICEL	X	X	X	X	X	X	X	X	X	X	X	X	X	X						

Table 7

Institutions which participated in MED POL - PHASE I and indication of the monitoring activities in which they were involved

	Metals in biota							Polychlorinated hydrocarbons in biota					Petroleum Hydrocarbons					Coastal Quality Control		
	Hg	Cd	Cu	Pb	Mn	Se	Zn	Other	PCB	DDT	DDD	DDE	DIE (1)	Other	d/d (2)	os (3)	ft (4)	lb (5)	sa (6)	ra (7)
National Institute																				
Inst. for Oceanography & Fisheries SPLIT	X	X							X	X	X	X							X	X
The Biological Institute DUBROVNIK									X	X	X	X								
"Rudjer Boskovic" Institute ZAGREB	X	X	X	X		X	X	X												
"Rudjer Boskovic" Institute ROVINJ									X	X	X	X								X

Institutions which participated in MED POL - PHASE I
and indication of the monitoring activities in which they were involved

	Metals in biota							Polychlorinated hydrocarbons in biota					Petroleum hydrocarbons				Coastal Quality Control			
	Hg	Cd	Cu	Pb	Mn	Se	Zn	Other	PCB	DDT	DDD	DDE	DIE (1)	Other	d/d (2)	os (3)	ft (4)	tb (5)	su (6)	ra (7)
National Institute																				
Marine Biological Station PORTOFORO	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X

- (1) Dieldrin
- (2) Dissolved/dispersed
- (3) Oil Slick
- (4) Floating tar balls
- (5) Tar on beaches
- (6) Shellfish areas
- (7) Recreational areas