ENGLISH EDITION

MEDWAVES

MAP CO-ORDINATING UNIT • NEWS BULLETIN PUBLISHED IN ENGLISH AND FRENCH • JANUARY-MARCH 1986 • ISSUE No 4

MERCURY: A COMPLEX PROBLEM

SEVERAL incidents of mercury poisoning in Japan and Iraq (during the 1950s and 1960s) and elsewhere, stimulated the concern of Governmets regarding the hazards of mercury ingestion by human population through consumption of contaminated food material, particularly seafood.

THE CASE OF THE MEDITERRANEAN SEA

THE problem seems to be of greater importance in the Mediterranean, since it was established in the late '70s that there was an abnormally high concentration of mercury in seafood from the Mediterranean as compared to seafood coming from other parts of the world (e.g. the Atlantic).

This is due to the fact that the Mediterranean basin is an area rich in mercury deposits, coming from both natural and anthropogenic sources. Both industrial and preindustrial cultures have an influence on the flux of mercury from land to sea. Activities of the first group include industry and mining, whereas other processes that affect the weathering, erosion and hydrologic regime also participate.

Increased public concern about mercury led to this metal being given high priority within the framework of the pilot phase of MED POL (1975-1980).

The most important input of mercury to the Mediterranean occurs through rivers. Coastal sources are responsible for only about 6% of the total mercury transported into the sea. Atmospheric transport of mercury and dumping of waste have been reported to be important sources in the marine environment.

LEVELS OF MERCURY IN THE SEAFOOD

MARINE organisms can take up mercury directly from the seawater, from food and from sediments.

Different forms of mercury have different properties with regard to bioaccumulation and toxicity. Methylmercury, which is very efficiently absorbed through biological membranes, is the most toxic form of mercury. It is also excreted very slowly – if at all.

Data concerning mercury concentrations in 18 species of fish, 3 species of molluscs and 3 species of crustaceans have been collected by scientists of the coastal states working on a MED POL project.

Most of the marine organisms were collected from coastal areas where mercury levels are higher. Most of the fish caught for consumption come from such areas.

The results of the tests conducted during this project indicate that the levels of mercury in fish are higher in the Mediterranean than elsewhere. Predatory species (like tuna and swordfish) appear to have higher concentrations than other fish.

HEALTH EFFECTS

HIGH concentrations of methylmercury in fish and shellfish can cause adverse health effects and even death to consumers. The most significant adverse effect observed in humans is on the central nervous system.

Symptoms include paresthesia, pain in the limbs, visual and hearing disturbances, weakness of legs and disturbance of gait, headaches and mental disturbances.

At the present time, an accurate evaluation of the health hazards through the consumption of Mediterranean seafood is difficult, due to the very limited data available for those population sectors likely to have a mercury intake in excess of acceptable levels.

NATIONAL LEGISLATION

FISH and other seafood, and their products, were found to constitute the major, if not the only, source of intake of mercury for most people investigated. As a result, the regulatory approach to the prevention and consumption of contaminated seafood has, so far, been primarily directed at limiting the levels of mercury in fish and other seafood. Control of the problem at source, limiting the anthropogenic emission of mercury into the environment has been considered of secondary importance. Several Mediterranean countries have applied limits on the concentration of mercury per Kg of fish. The acceptable concentration varies, according to national legistlation, from 0.5 to 0.7 mg of mercury per Kg of fish or seafood flesh.

The latter value usually refers to carnivorous fish. There are, sometimes, different specifications according to the origin of the products. In many countries legislation is under preparation or revision.

SEVERAL COMPLEXITIES

THE mercury problem, as has been pointed out before, is an extremely complex one, given all the different aspects and all the parameters that must be considered.

The first complexity concerns the sources of mercury in the Mediterranean: an-

pp. 4 and 5

A TEN YEAR ACTION PLAN

Experts from the Mediterranean Coastal States decided on a workplan and calendar of actions for the implementation of the LBS Protocol that cover the next ten years.

thropogenic versus natural. It also concerns the origin of the anthropogenic sources: industrial or pre-industrial societies. The determination of the origins is of considerable significance since the best approach to solving the problem seems to be controlling anthropogenic emission.

The second difficulty is the definition of acceptable intake by humans. This is of notable importance since (as fish eating habits vary between different populations and subgroups and mercury levels in seafood differ according to the species) a drastic Intervention would be to control mercury intake, by adopting regulations defining maximum limits.

Since it is not possible to measure the concentration of mercury in every fish, the scientists have to analyse samples of every shipment (catch, import or whatever).

On the other hand it is very difficult to measure the intake for every person, so the only solution was to devide the total consumed quantity of fish by the number of in habitants.That gives us directly a per capita consumption, and indirectly, a per capita intake of mercury.

These of course do not take into account:

a) the nutritional habits that vary from person to person and region to region (it is obvious that a coastal region's population consumes more fish than the population of an inland region).

b)the origin of the food (this applies to every country but is of special significance to countries that include regions with coastlines on other seas). It is practically impossible to determine whether every quantity of consumed fish originates from either part of the country, that is from which sea.

c) the special groups: children, people with a subnormal bodyweight, pregnant women (since it has been proved that mercury has a very serious effect on the foetus) and special groups of professionals (e.g. fishermen).

The inverse calculation, giving the maximum acceptable intake of mercury according to the weighted average of meals per capita per week, is the base for the definition of the maximum permissible levels of mercury in seafood. This calculation, however, does not take into account the concentration in every different species, which means that a given maximum level of "a" mg (translated into "b" meals per week) máy apply to a certain species –or the majority of the species– but might not apply in certain cases, concerning fish with a higher than usual concentration of mercury.

Nevertheless, according to the calculations made by the experts and the epidemiological studies, carried out or in progress, the Mediterranean population at large in *not* in danger, though *a number of population sectors* in the Mediterranean area do have an intake of methylmercury through seafood which exceeds the P.T.W.I. (Provisional Tolerable Weekly Intake).

One of the basic difficulties one is facing when trying to confront the mercury problem is that it is impossible to check every fish catch. Sampling showed however, that most of the fish do not have an extremely high concentration of mercury.

High concentration of mercury in fish and shellfish can cause adverse health effects to consumers. However, according to current information available, the Mediterranean population at large is not in danger.

WHAT COULD BE DONE

A NUMBER of actions can be taken to protect those population sectors:

a) Establishment of standards, either in all seafood or in selected species

b) Restriction on the size of fish allowed for consumption for certain species in which mercury concentrations are known to be a function of size.

c) Prohibition or restriction of fishing in coastal areas

d) Limitation of anthropogenic discharges of mercury

e) Advice on dietary intake, concerning either the choice of species or the frequency of fish meals and other available sources of protein.

AND, FINALY, ACTION IN PROGRESS

THE Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its related Protocols adopted, in their Genoa meeting, for the first time, several recommendations concerning the contamination of seafood by mercury.

The Parties consider that, at this stage, the adoption of upper limits for mercury concentration in seafood on a common regional basis would *not* be a priori justified. They also decided to take the joint FAO/WHO P.T.W.I. criterion (0.3 mg of mercury, of which no more than 0.2 in methylmercury, for a person of 70 Kg of bodyweight) into consideration in order to establish, if national circumstances so require, standards for maximum concentration of mercury in seafood.

Another decision concerns the limitation of anthropogenic discharges of mercury into the Mediterranean Sea.

Finaly, the Contracting Parties decided to continue monitoring mercury in seafood and to contact research relevant to:

1. identification of population groups at risk
2. surveys on seafood consumption patterns among such populations
3. surveys on mercury levels in affected population groups
4. epidemiological studies to obtain the necessary information on the relationship between mercury intake and health effects
5. studies of the relationship between total mercury and methylmercury content of seafood, and the effects of cooking on such content
6. studies on biogeochemical cycles of mercury in the Mediterranean and
7. studies on the effects of selenium in decreasing mercury toxicity.

Most of these activities are already in progress.

Furthermore, in their Meeting on the Technical Implementation of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources, the experts decided that by December 1987 an assessment of the state of pollution in the Mediterranean Sea by mercury and mercury compounds, followed by proposed measures should be ready ■

CONFERENCE ON THE POLLUTION OF THE MED

AN *International Conference on the Pollution of the Mediterranean Sea* was convened in *Split (October 2-5, 1985).* The conference reached the following main conclusions:

a) UNEP and the co-operating UN agencies (FAO, WHO, UNESCO, IOC, WMO, IAEA) are urged to continue their important work in the exchange of information, organization of training and experts' consultation, supply of instrumentation and materials to the research institutes, as well as with the preparation of environmental quality criteria and standards.

b) Planning of solid and liquid waste treatment and disposal is very important for sound environmental management. In Mediterranean countries it should become an essential part of physical, urban and other development on all levels of planning. Therefore, the development of appropriate planning methodologies should form an essential component of future co-operation among Mediterranean countries.

c) It is of vital importance that environmental planning and river basin management be part of all development programmes and activities of Mediterranean countries.

d) The re-use of wastewater (including stormwater run-off) untreated or wholly or partially treated as appropriate, is considered a matter of key importance in the Mediterranean basin.

e) Wastewaters should not be discharged through outfalls unless appropriate pretreatment is applied.

f) Further research and development of the most appropriate technologies for waste treatment and disposal is of utmost importance. Such work should take into account the great variety in natural conditions and waste receiving capacities of different locations around the Mediterranean.

g) Inventories of sources of pollution along the coast, including both qualitative and quantitative information,should be collected by competent authorities, co-ordinated and assessed within the framework of the Mediterranean Action Plan and used as a basis for action.

h) There is a clear need for the transfer of knowledge, skills and experience on all aspects of water pollution control technology from countries outside the Mediterranean basin and amongst the countries within the basin.

i) A major co-ordinated approach by Mediterranean countries to monitor and synoptically measure the fertility of their coastal waters is essential for future regulation of this unique resource. □

COASTAL WATER QUALITY AND HEALTH EFFECTS

WHO and UNEP organized in *Follonica, Italy (October 12-15, 1985) a Consultation Meeting on the Correlation between Coastal Water Quality and Health Effects.* The Metting had following objectives:

a) to review the results of completed and current epidemiological studies in the subject area, with particular emphasis on their achievements and their shortcomings;

b) to formulate a proposal for collaborative regional epidemiological studies that could be carried out in the Mediterranean;

c) to formulate draft guidelines for such studies;

d) to review the results obtained to date from those aspects of the MED POL Phase II monitoring programme that relate to the proposed epidemiological studies.

THE meeting made the following main recommendations:

1. The detailed protocol for epidemiological studies should be issued as soon as possible.

2. Negotiations should begin with relevant institutions in the Mediterranean region to enable epidemiological studies to begin within the framework of MED POL in 1986.

3. During the studies, the following should be kept in mind:

- the final goal of the project, i.e. the provision of data that will either confirm the present interim enviromental quality criteria or require their revision;
- the need for results to be applicable to the Mediterranean as a whole;
- the need for correlation with work already being carried out as part of the MED POL monitoring programme.

4. Within the framework of MED POL, microbiological reference methods, including the evaluation of results, should be developed and updated.

5. A list of pathogenic microorganisms considered as marine pollutants should be developed as part of the progressive implementation of the Protocol for the protection of the Mediterranean Sea against pollution form Land-Based Sources.

6. In the fields both of the survival of pathogens and of pathogen/indicator correlation, gaps in existing knowledge should be filled through appropriate MED POL research projects. □

MEETING ON THE EFFECTS OF POLLUTION ON MARINE ECOSYSTEMS

THE Contracting Parties to the Barcelona Convention and its Related Protocols at their second meeting in Cannes in 1981 approved the second phase of the Mediterranean Pollution Monitoring and Research Programme (MED POL Phase II).One of the research and study topics approved within the framework of this programme was the study of ecosystem modifications in areas influenced by pollutants and in areas where ecosystem modifications are caused by large-scale coastal or inland engeneering activities.

Within the framework of the above activity, a meeting on *The effects of pollution on marine ecosystems* was jointly convened by FAO and UNEP in *Blanes, Spain,* between *the 7th and the 11th of October 1985.*

The meeting was hosted by the Centre of Advanced Studies of Blanes (Centro des Estudios Avanzados de Blanes) of the C.S.I.C. (Superior Council for Scientific Investigations).

The recommendations drawn up by the meeting include the following:

a) Information should be gathered on the ecology and distribution of the species listed in Annex III to the Report, in polluted and unpolluted habitats, and particularly in those areas of the Mediterranean where such information is rare or lacking. This list contains a number of species which have been found in *some* Mediterranean areas to be useful indicators of environmental quality. Inclusion of a species in the list does not mean that it is recommended as an indicator. The purpose of the list is to draw attention to these species in the hope that further information on them will rapidly accumulate.

As an aid to this process, a short handbook should be prepared containing a summary of what is already known of their ecology and distribution in relation to pollution.

b) The value of short-term ecological surveys is questionable. Therefore long-term ecological surveys of both polluted and unpolluted habitats should be encouraged.

c) In view of the wide range of criteria of pollutant effects, and the wide range of methods of study which are in use in different Mediterranean regions, more rapid progress is required in their evaluation and the identification of the most useful approach.

d) There should be closer collaboration between laboratories participating in the MED POL programme and other international organizations with aims similar to those of UNEP. □

A TEN YEAR ACTION PLAN

The full implementation of the LBS Protocol is the single most important task in the Mediterranean Action Plan

IN THE Preamble to the Land-Based Sources Protocol the Contracting Parties noted the rapid increase of human activities in the Mediterranean Sea Area, particularly in the fields of industrialization and urbanization, as well as the seasonal increase in the coastal population due to tourism and recognized the danger posed to the marine environment and to human health by pollution from land-based sources and the serious problems resulting therefrom in many coastal waters and river estuaries of the Mediterranean Sea primarily due to the release of untreated, insufficiently treated or inadequately disposed domestic or industrial discharges.

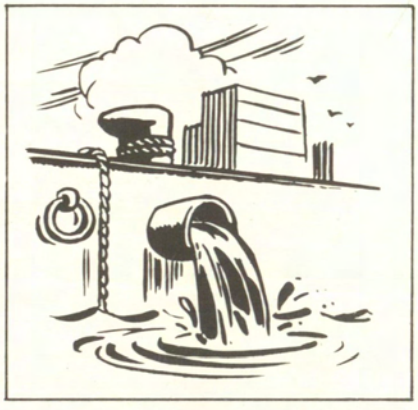
Bearing in mind the severity of the problem and the increased expenditures required to implement the Protocol (an estimated $ 15 billion), the Mediterranean Countries decided at their third ordinary meeting held in Dubrovnik, Yugoslavia (February 28-March 4, 1983) to convene a meeting of experts in order to elaborate the technical aspects of the implementation of the Protocol.

It was decided that the meeting should be convened in 1983, but due to the lengthy preparations involved, it was postponed and it finaly took place in Athens (December 9-13, 1985).

The Secretariat aiming at the preparation of programmes and measures regarding all substances in Annexes I and II of the Protocol by the year 1995, introduced proposals for general principles for the development of the draft programmes. The meeting recommended the adoption of the 1986-1987 component in detail and considered the rest as indicative, subject to review.

WHAT WILL BE DONE

ACCORDING to the Report of the meeting, the following actions should be completed by December 1986: completion and revision of the Glossary, list of substances falling within each of the Groups in Annexes I and II to the Protocol, assessment of the state of



pollution in the Mediterranean Sea by used lubricating oils and proposed measures, survey of land-based sources and amounts of pollutants reaching the Mediterranean Sea, assessment of the state of microbial pollution of shell-fish and shell-fish growing waters in the Mediterranean Sea and proposed measures, evaluation of the benefits and limitations of submarine pipelines, whether or not associated with treatment plants, for the discharge of liquid effluents, formulation of the procedure for the collection and submission of information from the Parties on measures taken, results achieved and difficulties encountered in the application of the Protocol, draft guidelines for the issue of authorizations for the discharge of liquid wastes into the Mediterranean.

December 1987 is the target date for: the assessment of the state of pollution in the Mediterranean Sea by cadmium and cadmium compounds, mercury and mercury compounds and by organohalogen compounds and proposed measures, a comparative review of the various types of treatment existing in the Mediterranean area for wastewaters, with the view of their re-use or their discharge into the sea, the compilation of detailed information on existing legislative measures regarding the discharge of wastes through submarine outfalls in the Mediterranean countries together with similar information from selected countries outside the region, to enable comparison and evaluation of applicability, the identification and categorization of effluents requiring special and/or separate treatment and listing of such treatment and/or other requirements normally associated with, or advisable for, such effluents.

AN INDICATIVE TIMETABLE

ANOTHER seven actions should be completed by December 1988, four by December 1989, four by December 1990, seven by December 1991, three by December 1992, three by December 1993, three by December 1994 and two by December 1995 (giving a total of thirty three actions), according to the indicative timetable concerning the period 1988 to 1995.

AUTHORIZATIONS FOR WASTE DISCHARGES

AFTER discussing the draft guidelines and forms, the meeting agreed that the following procedures would be observed:

a) Countries would send comments on the draft forms to the Secretariat by the end of February 1986
b) On the basis of such comments, the Secretariat would prepare a simplified version of both forms and submit these to the Working Group for Scientific and Technical Co-operation (WGSTC) meeting in June 1986
c) Countries would send detailed comments on the whole document by the end of November 1986. These comments would be used by the Secretariat for the preparation of a revised version of the document, which would be submitted to the 1987 meeting of WGSTC.

A number of representatives pointed out the following facts:

a) Practical problems would prevent the imposition of authorization for discharges at the present time

b) Problems could also arise in countries where procedures for authorization which were not necessarily identical with those in the guidelines already existed
c) The economic capacity of the Parties should be taken into account.

Finally a strong emphasis was placed on the importance of re-use and recycling of wastes and wastewaters, and it was urged that as much attention as possible should be given to this aspect.

GUIDELINES FOR ACTION

THE following general guidelines (among others) were adopted by the Contracting Parties:

a) The existing level of pollution of the Mediterranean Sea and the severity of its effects on the Mediterranean ecosystem, human health and amenities should be used as indications guiding the timetable for the formulation of measures.
b) The Protocol should be implemented progressively, through a step-by-step process, according to a long-term work-plan and timetable agreed by the Contracting Parties
c) The programmes and measures for the implementation of the Protocol shall include common guidelines, standards or criteria, wherever appropriate
d) The measures adopted individually or jointly under the Protocol should take into account the economic capacity of the Contracting Parties
e) Assistance should be made available to developing countries in the implementation of the Protocol. Such assistance should include exchange of information in the fields of services and technology, training in pollution control methodologies as well as acquisition of appropriate pollution control technologies on advantageous terms
f) Annex IV to the Protocol concerning pollution from land-based sources transported by the atmosphere, should be prepared in accordance with the provision of Article 4 of the Protocol.

A SHORT HISTORY OF THE PROTOCOL

THE Protocol was adopted on May 17, 1980 in Athens, Greece, and signed by Cyprus, the EEC, France, Greece, Israel, Italy, Lebanon, the Libyan Arab Jamahiriya, Malta, Monaco, Morocco, Spain, Tunisia and Turkey.

It entered into force on June 17, 1983, after being ratified by Tunisia, France, Monaco, Turkey, Algeria and Egypt. Since then it has also been ratified by the EEC, Spain and Italy.

WHAT DOES THE PROTOCOL STATE?

Article 4

1. This Protocol shall apply:
(a) To polluting discharges reaching the Protocol Area from land-based sources within the territories of the Parties, in particular:
directly, from outfalls discharging into the sea or through coastal disposal;
indirectly, through rivers, canals or other watercourses, including underground watercourses, or through run-off;
(b) To pollution from land-based sources transported by the atmosphere, under conditions to be defined in an additional annex to this Protocol and accepted by the Parties in conformity with the provisions of article 17 of the Convention.
2. This Protocol shall also apply to polluting discharges from fixed man-made off-shore structures which are under the jurisdiction of a Party and which serve purposes other than exploration and exploitation of mineral resources of the continental shelf and the sea-bed and its subsoil.

Article 5

1. The Parties undertake to eliminate pollution of the Protocol Area from land-based sources by substances listed in annex I to this Protocol.

(Annex I states that:
"The substances, families and groups of substances listed, have been selected mainly on the basis of their Toxicity; Persistence; Bioaccumulation".)

Article 6

1. The Parties shall strictly limit pollution from land-based sources in the Protocol Area by substances or sources listed in annex II to this Protocol.

(Annex II states that:
"The substances, families and groups of substances, or sources of pollution, listed, have been selected mainly on the basis of criteria used for annex I, while taking into account the fact that they are generally less noxious or are more readily rendered harmless by natural processes and therefore generally affect more limited coastal areas.

The present annex does not apply to discharges which contain substances listed in section A that are below the limits defined jointly by the Parties".)

Article 7

1. The Parties shall progressively formulate and adopt, in co-operation with the competent international organizations, common guidelines and, as appropriate, standards or criteria.
2. Without prejudice to the provisions of article 5 of this Protocol, such common guidelines, standards or criteria shall take into account local ecological, geographical and physical characteristics, the economic capacity of the Parties and their need for development, the level of existing pollution and the real absorptive capacity of the marine enviroment.

Article 8

Within the framework of the provisions of, and the monitoring programmes provided for in, article 10 of the Convention, and if necessary in co-operation with the competent international organizations, the Parties shall carry out at the earliest possible date monitoring activities in order:
(a) Systematically to assess, as far as possible, the levels of pollution along their coasts, in particular with regard to the substances or sources listed in annexes I and II, and periodically to provide information in this respect;
(b) To evaluate the effects of measures taken under this Protocol to reduce pollution of the marine enviroment.

Article 10

1. The Parties shall, directly or with the assistance of competent regional or other international organizations or bilaterally, co-operate with a view to formulating and, as far as possible, implementing programmes of assistance to developing countries, particularly in the fields of science, education and technology.

THE MAP EXHIBITION

On January 24, 1986 the Mediterranean Action Plan Exhibition was opened in Nicosia, Cyprus, by the Minister of Agriculture and National Resources Dr A. Papasolomontos, in the presence of the Co-ordinator of MAP Mr A. Manos, the Senior Fishery Officer Dr. G.P. Gabrielides, the UNDP Resident Representative Mr. L. Gomez - Echeverri, the General Director and the Directors of the several Divisions of the Ministry.

The exhibition consists of 35 panels that describe the history and activities of the Mediterranean Action Plan.

The Cyprus exhibition (January 24-February 3, 1986) was the second national presentation, the first being the one in Athens (December 1-15, 1985). The exhibition was first presented in Genoa, during the fourth Ordinary Meeting of the Contracting Parties (September 9-13, 1985).

In his speech, Dr. Papasolomontos pointed out that the people of Cyprus believe "that whatever differences exist between the states the coasts of which are touched by the waters of the Mediterranean, this sea itself is a unifying factor, a heritage, which is threatened and for the sake of the preservation of which no efforts should be spared".

"We are aware of the risks of oil pollution", added Dr Papasolomontos. "These were emphasized dramatically by our ZENOBIA experience and for this reason we have been working not only towards aquiring of the necessary knowhow and towards the purchasing of equipment and supplies but also towards setting up contingency plans for an effective response to major oil pollution accidents. With help from the Regional Oil Combating Centre of the M.A.P., our national Contingency Plan is now nearing completion".

And the Cypriot Minister concluded: "I feel compelled to congratulate the Secretariat of the Co-ordinating Unit for the Mediterranean Action Plan and of course UNEP itself, for preparing this excellent exhibition. Finaly I would like to thank the Mayor of Nicosia and the Nicosia Municipality for their offer of these impressive exhibition halls to accommodate this exhibition".

The next presentation of the Exhibition will be in Algiers (March 20-26, 1986). Plans are made for presentations in Geneva (Palais des Nations) and France. ☐

The Minister of Agriculture and Natural Resources of Cyprus Mr A. Papasolomontos, the Co-ordinator of MAP Mr A. Manos and the Senior Fishery Officer Dr G.P. Gabrielides at the opening of the Mediterranean Action Plan Exhibition at the Famagusta Gate Exhibition Hall in Nicosia, Cyprus

THE MAP BROCHURE

A highly informative brochure explaining the reasons that led to the creation of the Mediterranean Action Plan, analysing the Barcelona Convention and the related Protocols, describing MAP's components and their activities and giving a short history of the Programme has been published in English. ☐

3-DAY VISIT OF LIBYAN REPRESENTATIVE

Mr Mohammed M. Khalifa, collaborator of the Libyan national MED POL co-ordinator, payed a 3-day visit to Athens, Greece (February 24-26, 1986) in order to finalize the first MED POL national monitoring programme for the Libyan Arab Jamahiriya. ☐

A THREE WEEK TRAINING COURSE FOR TURKISH OFFICIAL

Ms Nesrin Ulusel, official of the General Directorate for the Environment at the office of the Prime Minister of Turkey, is in Athens, Greece, for a 3 week training course (March 3-21, 1986) at the Co-ordinating Unit.

Ms Ulusel is briefed on the activities of each component of the Mediterranean Action Plan. ☐

VISIT OF H.E. Ms H. BOUCHARDEAU, MINISTER OF ENVIRONMENT OF FRANCE TO EGYPT

An agreement on environmental protection between France and Egypt was signed on 19 January 1986 by Ms Bouchardeau and Mr. Atef Obeid, Minister for Council of Ministers affairs, responsible for the environment protection programme.

The duration of the agreement is three years starting from 1986.

The agreement deals with the:

1. Establishment of an Egyptian/French Company for the treatment of waste waters from factories
2. Training courses for Egyptian experts in the field of environment
3. Use of sewage waters for agricultural purposes
4. Establishment of units for air pollution, monitoring, in particular in population density areas
5. Co-operation between Egyptian and French Universities in the field of environmental education.

Cairo, 20.1.1986 — *AL–AKHBAR Newspaper*

PUBLICATIONS AND BOOKS

GUIDELINES TO ENVIRONMENTAL IMPACT ASSESSMENT IN DEVELOPING COUNTRIES by Yusuf J. Ahmad and George K. Sammy, (HODDER AND STOUGHTON, London, 1985). This book, sponsored by UNEP, consists of the following chapters: What is EIA (Environmental Impact - Assessment), Exploding Myths, Steps in EIA, Problems and Potential Solutions, Cost-Benefit Analysis as a Tool for Environmental Decision-Making, Institutional Arrangements, Prospects for the Future. ☐

ROCC INFO Issue No 16 of ROCC INFO, the bulletin of the Regional Oil Combating Centre for the Mediterranean on Manoel Island, Malta, has been published. It contains News from ROCC, articles on recent progress in antipollution combat, about new equipment and products and several other subjects. ☐

MEETING ON THE TOXICITY AND BIOACCUMULATION OF SELECTED SUBSTANCES IN MARINE ORGANISMS (FAO, Rome 1985, FAO Fisheries Report No 334).

This meeting that was held in Rovinj, Yugoslavia, (November 5-9, 1984), was prepared as part of the Long-Term Programme for Pollution Monitoring and Research in the Mediterranean (MED POL Phase II). ☐

BULLETIN OF PRIORITY ACTIONS PROGRAMME Bulletins No 3 (July-September 1985) and No 4 (October-December 1985) have been issued by the PAP Regional Activity Centre in Split. They contain information about activities, meetings, publications received etc. ☐

UNEP/WG 145/3, Report of the Review Meeting on the MED POL jellyfish programme (UNEP, Athens, 1986)

This document concerns the meeting on jellyfish held in Trieste, Italy (January 27-29, 1986). ☐

Rapport National sur la Protection de l'Environment en Algerie
Republique Algerienne Democratique et Populaire, Ministere de l'Hydraulique, de l'Environment et des Forets. Alger, Decembre 1985. ☐

JOINT MEETING OF BP/PAP NATIONAL FOCAL POINTS

ATHENS, April 28-30, 1986

A THREE day meeting whose main purpose will be to review the activities of Blue Plan and the Priorities Action Programme since Genoa and discuss future activities for 1986 and 1987.

The first day will be devoted to the Blue Plan and the second to PAP. During the third day the participants, the National Focal Points for BP and PAP, will discuss the ways and means for a closer co-operation and co-ordination between the two subprogrammes and the other components within the framework of the Mediterranean Action Plan.

A study group within the Blue Plan will be studying the national scenaria, prepared by national experts' groups, and preparing a synthesis aiming at providing a Mediterranean scenario.

MEETING OF THE WORKING GROUP ON SCIENTIFIC AND TECHNICAL CO-OPERATION

ATHENS, June 16-20, 1986

THIS is the fourth meeting of the National MED POL Co-ordinators.

The main purpose of the meeting is to review the progress made in the implementation of the on going national monitoring programmes, including the processing of the first data reports, as well as the research activities carried out in 1985. The activities to be carried out in 1986 and 1987 will also be discussed.

Other subjects include reports on the progress concerning the implementation of the 3 related protocols (Land-Based Sources, Dumping and Emergency) and a report on the state of implementation of the Survey of Land-Based Sources and Amounts of Pollutants reaching the Mediterranean Sea (MED POL X bis).

A number of pollutants' assessments, listed in the workplan for the implementation of the LBS Protocol (such as pollution by petroleum hydrocarbons, used lubricating oils, heavy metals other than mercury and microbial pollution of shellfish and shellfish growing waters) are going to be discussed as well as the state of their implementation.

Background

The general long term objective of MED POL Phase II is to assist the parties to prevent, abate and combat pollution of the Mediterranean Sea Area and to protect and enhance the marine environment of the Area.

Among the mechanisms which are used for MED POL Phase II related to policy making, a prominent position is given to the Working Group for Scientific and Technical Co-operation (WGSTC) which consists 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 meeting of the Contracting Parties.

In Genoa the WGSTC was intrusted to deal with the technical implementation of the Land-Based Sources Protocol.

MEDWAVES is published bimonthly by the Co-ordinating Unit for the Mediterranean Action Plan in English and French. It is intended as an informal news bulletin and does not necessarily reflect the official view of MAP or of UNEP.

News, articles and interviews may be freely reprinted with or without reference to MEDWAVES. However signed communications should be reprinted only with permission from the author.

If you would like to propose an article on a subject related to marine science, please address to: Spyros Vretos, Editor. MEDWAVES, Co-ordinating Unit of the Mediterranean Action Plan, 48 Vas. Konstantinou Ave., 116 35 Athens Greece. Tel. (00301) 7236.586, Telex 222 611 MEDU-GR

THE MAP CALENDAR OF MEETINGS APRIL - OCTOBER 1986

Meeting of Experts on Tourism	7-9 April Split
Training Course on oil pollution combating MEDIPOL 86	8-18 April Malta
Seminar on the Experiences in the Protection and Rehabilitation of selected MED Historic Settlements	16-19 April Split
Seminar on Environmental aspects of Aquaculture	21-30 April Volos (GR)
Joint meeting of BP/PAP national focal points	28-30 April Athens
Seminar on Earthquake zones (case studies and the project proposal)	26-30 May Genoa
General Training Course on prevention and control of Marine Pollution accidentsINFO POL 86	12-17 June Paris, Brest and Marseille
Meeting of the Working Group on Scientific and Technical Co-operation	16-20 June Athens
Seminar on Integrated Planning of Mediterranean coastal zones	23-27 June Athens
Study Group on Mediterranean scenarios	end of June Sophia-Antipolis
Sixth meeting of Steering Committee of BP	July Sophia-Antipolis
Meeting of experts to review the methodology and guidelines for Environmental Impact Assessment (EIA)	7-9 July Split
Consultation Meeting on assessing results of the project on evaluation on methylmercury in Mediterranean pollution	15-19 Sept. Athens
Secont meeting of Bureau (BUR 27)	Sept. Athens
Seminar on water resources management practices in small Mediterranean islands	8-10 Sept. Spain/Split
Training Course on one aspect of oil combating MEDEXPOL 86	One week in October
Seminar on soil protection (soil erosion)	1-3 Oct. Split
Meetings of experts on codes of practice for solid and liquid waste	13-14 Oct. 15-16 Oct. Split
VIII ICSEM/IOC/UNEP Workshop on Pollution of the Mediterranean	20-25 Oct. Palma de Mallorca, Spain
Intercalibration exercise for reference methods dealing with Petroleum Hydrocarbons (D)	Oct. Barcelona

THE REGIONAL OIL COMBATING CENTRE IN MALTA

Since its inauguration ROCC received more than 100 alerts and accident reports

THE Mediterranean is a sea with a very heavy traffic, one of the heaviest in the world. Although few big accidents have occured in this area (some of the most serious were the INDEPENDENTA incident: 95.000 tons spilt in the Bosphorus in November 1979, and the SERENADE incident: 100.000 tons spilt in Pylos Bay, Greece, in February 1980), the large scale spillages occured in the past in other parts of the world could only emphasise the risk. In 1975, only four out of the eighteen coastal states had a national contingency plan to combat oil pollution. Moreover no inventory of the antipollution facilities available within the region was in existence.

The Regional Oil Combating Centre (ROCC) was created, in 1976, with two immediate objectives:

a) To strengthen the capabilities of the coastal States in the Mediterranean region and to facilitate co-operation among them in order to combat massive pollution by oil.

b) To assist coastal States of the Mediterranean region, which so request, in the development of their own national capabilities to combat oil pollution and to facilitate information exchange, training and technological co-operation.

FACILITIES OF THE CENTRE

THE Centre was inaugurated on December 11, 1976 on Manoel Island, near Valetta harbour, in premises offered by the Government of Malta. It is administered by IMO. Its financial resources are coming from the Mediterranean Trust Fund. The staff consists of nine persons.

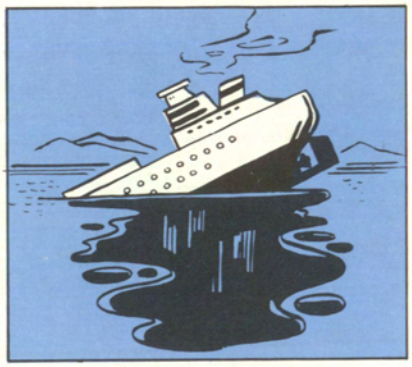
The Centre comprises spacious rooms fitted with facilities for organizing meetings, a library of specialized documentation etc.

ACTIVITIES AND SERVICES

THE activities of the Centre have been developed along the following priorities:

a) Supply and exchange of information. This includes the creation of a network of national focal points, the setting up of inventories and catalogues of equipment and chemical products designed for oil pollution combating, experts in the different techniques of oil pollution combating and organizations working in the Mediterranean likely to offer services in case of emergency, and the publication of a periodical newsletter ("ROCC INFO") in English and French.

COVERING the need for detailed information about oil combating (strategies, equipment, products etc) and publishing theoretical articles on several subjects, ROCC INFO, the bulletin issued by the Regional Oil Combating Centre, is a major countribution to the supply and exchange of information between scientists and decision makers on that area of knowledge, so vital for the protection of the Mediterranean Sea.



b) Training. At the beginning, because of lack of equivalent possibilities in the Mediterranean area, the Centre made possible the participation of trainees to cources organized outside the region. Later on, as training facilities were created in the region, more than 150 persons have followed the training seminars organized directly by the Centre in hospitable regional organizations.

c) Preparation of Contingency Plans. Fourteen coutries participated to a workshop on contingency planning organized at the Malta Centre in September 1978. Four countries (Cyprus, Malta, Marocco and Tunisia) have benefitted from the direct assistance of the Centre in the preparation of their respective contingency plan.

d) Exercises. Together with its operational focal points the Centre organizes periodic communication exercises in order to check transmission facilities, the time of response of the coastal States contacted as well as the clear understanding by ROCC's focal points of the procedure and possibilities of the co-operation offered.

e) Assistance in emergencies. To date more than one hundred alerts and accident reports have been received. The Centre intervened on several occasions. During the last two years, ROCC has been contacted by various countries to give advice on solutions to be adopted in combating pollution of modest size.

f) Antipollution Guide. In 1985 ROCC prepared and disseminated to its focal points a Guide to be used by National Authorities responsible for combating oil pollution in the Mediterranean. This Guide was designed to set as an aide-memoire gathering the essential knowledge necessary to those responsible for combating, adapted to the specific needs of the Mediterranean.

THE NEED FOR REGIONAL CO-OPERATION

THE main activities mentioned above show encouraging progress in the development of active co-operation between the Centre and the Mediterranean coastal states.

The results obtained are certainly encouraging but one must not be deluded, there is still considerable work to be done. If tomorrow an accident comparable to that of the AMOCO CADIZ were to happen in the Mediterranean, and this cannot be ruled out, the means of the coastal States will prove very insufficient. In a closed sea, a big amount of the pollutant will reach the coast very quickly. According to the site and the meteorological conditions, it will be tens, even hundreds, of kilometres of coastline which will be affected. The Mediterranean will be badly affected over the years and the country or countries concerned will be profoundly handicapped. No country is at present capable of facing a major accidental pollution with only its own means. Regional co-operation is indispendable. But for this co-operation to be fast and effective, there is no room for improvisation. It is up to ROCC to play an essential role in this perspective in order to facilitate contacts between those concerned, in preparing the mentality for co-operation and in working out the rules capable to overcome the multiple obstacles which inevitably hinder joint operational activities.