

UNEP



# MEDWAVES

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**THE BASEL CONVENTION AND  
THE MEDITERRANEAN**

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**PESTICIDES AND PCBs  
CLOSELY MONITORED**

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E N G L I S H E D I T I O N

# ADOPTION OF THE BASEL TREATY ON HAZARDOUS WASTE

## The Mediterranean at the crossroads of transboundary movements

*By meeting in Basel, March 20-22, 1989 the representatives of 115 countries had answered the call of UNEP. They marked a new major step in the protection of the world environment by adopting the Final Act of the treaty, on the control of transboundary movements of hazardous waste and its disposal. Among the 115 countries were the 17 Mediterranean coastal States; 8 signed the treaty on the spot, as did the EEC.*

Just as 1987 was the year of the historic Montreal treaty on the protection of the ozone layer, I hope that 1989 will be the year to mark the end of indiscriminate dumping of hazardous waste" stated Dr. Mostafa K. Tolba, UNEP's Executive Director. It was the end of January 1989 at the meeting in Luxembourg of legal experts from 50 countries entrusted with examining the text of a draft convention on limitation and control of international transfers of hazardous waste. Less than two months later, this wish was translated into a new historic agreement which extends the scope of consensus of nations in matters of environmental protection. From the 20th to the 22nd of March, delegations of 115 countries adopted the sixth and final version of the draft treaty which makes up the Final Act. 34 countries signed it on the spot and the Treaty will enter into force three months after it is ratified by at least 20 States. Among those that have signed it, there were 8 of the 17 Mediterranean States represented: Cyprus, France, Greece, Israel, Italy, Lebanon, Spain and Turkey. The African Mediterranean countries put off a decision on signing after the meeting of the Organization of African Unity (OAU) at Bamako, Mali. The EEC, which is also a party to the conference and signed the Treaty had worked in the same direction since 1984 by issuing a Council Directive "concerning monitoring and control of transboundary transports of hazardous waste in the Community". On the other hand, UNEP had prepared the conference and the agreement that followed through negotiations that lasted 18 months; it was inspired by the Cairo guidelines and principles concerning ecologically sound management of hazardous waste that its Governing Council had adopted in June 1987.

### Basel, the city: a symbol

The selection of the Swiss city of Basel to convene the conference was not done at random. Located at the intersection of three industrial countries (Switzerland, France, Germany), it is the headquarters of three of the largest chemical groups in the world; it is for this reason that it has frequently faced serious environmental threats: incineration of barrels of dioxine from Seveso in 1983, fire at a very large chemical storage facility in 1986, massive contamination of the Rhine river. Basel is also the city where the principle "the polluter pays" was from very early on applied with great stringency. Conscious of the challenge for their own territory, the government and the authorities of the Basel district (canton) were very eager to host the conference.

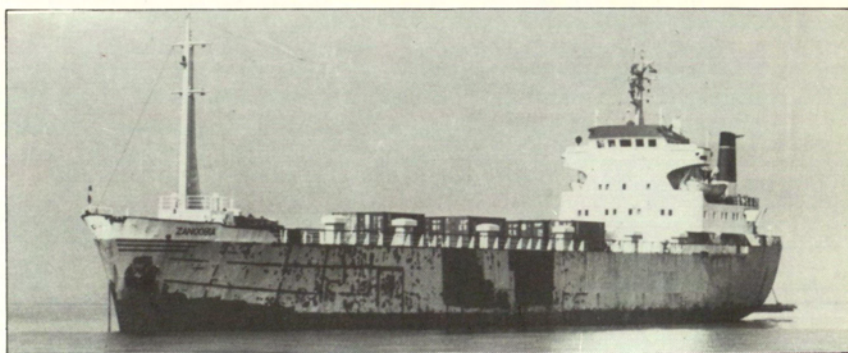
### Numbers impossible to fathom

What is really the quantity of hazardous wastes annually transported throughout the world? To this question, Jan Huismans, director of the International Register of potentially toxic chemical substances (UNEP, Geneva) answers with modesty: "No one really knows". To a large extent such exchanges escape the vigilance of states, when they are not disguised through complicity. Some environmental organizations, like Greenpeace, state the figure of 3 million tons per year. In any event, what is known with greater accuracy is the annual production of hazardous wastes: at world level, from 5 million in 1947 it has risen to 300 million tons today. The USA and the highly industrialized countries of Europe are responsible for

4/5 of this quantity. They are thus confronted with the pressing problem of the elimination of these wastes whose volume is continuously increasing. "Ideally, explained Dr. Tolba on the eve of the Conference, wastes should be eliminated without risk near the site of production, but when the international movements of hazardous wastes aim at better protecting human health and the health of the environment they cannot and indeed should not be totally banned. This is why such transports should be controlled". In effect, for certain industrialized countries, the proliferation of elimination sites on a small territory, or the high specialization of treatment required forces them to call upon neighbouring countries. Thus in Europe itself, transboundary movements would currently involve a million tons, either through burying wastes in the North Sea, or through retreatment in specialized plants in France or the U.K. or through storage in salt mines in the Federal Republic of Germany. The Federal Republic on the other hand exports every year about 600,000 tons of wastes to the German Democratic Republic.

### The fears of the Third World

In addition to the technical and territorial problems there is also the cost of the operation: from \$10 to \$2,000 per ton depending on the product to be treated! Given this financial burden, many industries of the developed countries have turned to the countries of Africa, Latin America and Asia to unload their wastes at lower prices. Up to that point elimination had been "a concern of the rich". But when countries such as Haiti,



*Zanoobia off Genoa Harbour*

The odyssey of the ship *Zanoobia* finally ended in Genoa in June 1988 after 17 months. Initially, the ship's cargo, which was 2,000 tons of toxic products in 12,000 barrels some of which were leaking, was loaded in Italy onto a Maltese ship which brought it to Djibouti. Licence to unload was not granted by the authorities there and the cargo was reloaded onto a Cypriot vessel which was refused unloading in several Mediterranean harbours and thus took it to Venezuela which accepted it. However 4 months later, because toxic emanations came from the cargo the Venezuelan authorities demanded that it be sent back. A Syrian vessel, the *Zanoobia* brings it back to the Mediterranean and it too comes up against refusals by Syria, Turkey and Greece. Finally, the cargo is unloaded and eliminated at Genoa. From that point on, Italy adopts the most stringent legislation in Europe on industries producing hazardous waste. When the Basel treaty enters into force, it will do away with odysseys such as that of the *Zanoobia*.

## MAP ACTIVITIES

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### Expert Meeting on the conservation of the Mediterranean marine turtles, Nicosia, Cyprus, 4-6 July 1989

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The Meeting was organized by the MAP Co-ordinating Unit with the support of RAC/SPA Tunis. During the two-day meeting, 11 representatives of the Contracting Parties to the Barcelona Convention and 5 observers of international non-governmental organizations analyzed the situation concerning the marine turtles in the various Mediterranean countries and drafted an action plan for their protection to be submitted for adoption to the meeting of the Contracting Parties next October.

It is well known that the nesting areas of turtles are often threatened by tourism and fishing; thus the governments of the States most concerned with the problem – Greece with the island of Zakynthos, Turkey with

the Mersin Gulf and the Dalyan site, Cyprus with the Lara area – are making efforts to protect the species. The action plan approved by the participants stresses the need for public awareness campaigns, mainly targeting the tourists to respect the nesting areas and the fishermen to refrain from turtle catches.

The meeting was followed by a field visit to the Lara area on the west coast of the island, where the participants had the opportunity to observe the operation of a protection station, where the eggs of turtles which are picked up at neighbouring beaches (and which run the risk of being destroyed) are brought for incubation.

A training course will be organized at Lara annually. It is starting this year with RAC/SPA covering the expenses of 4 participants from Mediterranean countries. The marine turtle action plan, along with the monk seal action plan already adopted, will ensure the protection of the endangered species as stipulated by the Genoa Declaration of 1985.

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### Expert Meeting on the endangered Mediterranean marine plants, 12-13 June 1989, Marseille, France.

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This meeting organized by RAC/SPA Tunis brought together experts from 10 Mediterranean coastal states in order to establish the first Red book of endangered marine plants, populations and seascapes in the Mediterranean.

During the meeting, the participants drew up a list of endangered species at regional and national level, then a list of underwater seascapes linked with the plant species threatened with extinction and finally a list of sites which need immediate protection due to the presence of one endangered species or landscape. They also formulated a number of recommendations on the management of marine plants in the Mediterranean.

Nigeria or Guinea (to mention only the cases brought to the attention of the public) run the risk of becoming the "dumping sites" of prosperous nations, the problem acquires a moral dimension: already destitute, hit by debt and a population explosion, the Third World should also lose the last asset that it has, a relatively spared environment? The barter "wastes for currency" was all the more alarming since a true illicit traffic had developed and since "waste brokers" were offering fabulous contracts to countries which often ignored the nature of products they were receiving and obviously did not have adequate treatment facilities. Confronted with this threat of which they became conscious in the last three years, the African countries reacted by proposing the principle of the total ban on the exportation of wastes. On the other hand, the industrialized countries agreed to "engage in moral and controllable exchanges"; such exchanges should however continue, they stated: only about 20% of the hazardous waste generated in and exported from industrialized states reaches the countries of the South; furthermore, in the near future, it is likely that developing countries will need to export hazardous waste – PCBs for example – to developed countries which have facilities for treatment (Nigeria is already shipping such waste to Britain) and this leads to the concept of reciprocity.

#### Safeguards obtained at Basel

These differences between developed and developing countries were highlighted during the 18-month long negotiations which preceded the Basel agreement; UNEP officials fully conscious that a failure would have

disastrous effects tried to steer "a middle course". Like every treaty the Basel treaty is a compromise. Even if the exportation of danger waste is not banned, it is governed by certain procedures and legal constraints which should do away with the chaos prevailing up to that point in transboundary movements, considerably limit them and have an inhibitory effect on illicit practices. From now on for any shipment of waste, it is mandatory for the exporting country to submit in advance to the importing country a written and detailed statement; the importing country on the other hand should give its written consent before any movement of waste toward its boundaries begins. The signatories to the Convention ban exportation to any country that bans imports of waste or to any country non-signatory to the Convention or beyond the 60° parallel of the Southern hemisphere (protection of the Antarctic). Shipments of hazardous waste must be packaged, labelled and transported in conformity with international regulations and be accompanied by a "document covering movement from the site of production to the site of elimination". If elimination cannot proceed as foreseen, the exporting State has a duty to carry out itself the elimination on the spot within 90 days or take back the load. Finally a secretariat based in Geneva will monitor the implementation of the Treaty, will collect and communicate all useful information and will help the Parties facing some difficulties to carry out their commitments.

#### The Mediterranean: at the crossroads of exchanges

The Basel Treaty does not solve all the problems, but its progressive ratification by

all States will have an acceleration effect on national legislations and practices. On the other hand it is open to improvements. In this connection, the Final Act contains 8 resolutions which deal with perspectives on the responsibility of States, the setting up of a mechanism for the application of the treaty and the sound environmental management of wastes. The constraints imposed on the industries concerned will no doubt force them to find alternative solutions to exportation, such as limitation of production, re-use and recycling of the waste they produce. In addition, in a common declaration the 35 European, African and Asian signatories (among which the EEC and the 8 Mediterranean States mentioned above):

- reaffirm their intention to eliminate waste where it is produced; and
- will refrain from authorizing importation or exportation of wastes in the case of countries that do not have the requisite legal, administrative and technical means to manage and eliminate the wastes through environmentally sound methods.

Located at the crossroads of 3 continents, traditional course of maritime exchanges, the Mediterranean has experienced, in the last few years, disturbing episodes of illicit traffic and uncontrolled dumpings. The odyssey of the ship *Zanoobia* (see photo opposite) made the headlines in 1988. On the two coasts of the Basin the industrialized North confronts directly the developing South. The remaining 9 Mediterranean States will, it is expected, also sign the treaty; that and its ratification should extend to this field the cooperation among coastal States which has already been proved within the framework of the Barcelona Convention and the Mediterranean Action Plan.

# CHLORINATED PESTICIDES AND PCBs IN THE MEDITERRANEAN

The problem of chlorinated pesticides illustrates by itself the damage on several generations of the uncontrolled use of products which are very useful to man, especially in agriculture, damage which however had not been evaluated in the beginning concerning their persistence in the environment and their long term toxicity. The insecticide DDT was the first of this family to be discovered in 1939. Its production and use throughout the world after the Second World War gave spectacular results in the increase of agricultural production and in combating carriers of infectious diseases. It was only in the 60's that scientists began realizing the extent of its toxic effects on animal and plant species (and on man who consumes them); this was due to progress in the development of more refined analytical methods which allowed the discovery of residues in the environment and foodstuffs. However, it was already very late: in the biotopes DDT lives often for more than 20 years, which means that more than 100 years after a ban has been in force in most of the countries of the world considerable quantities of residues will remain in the environment contaminated by this product.

In the meantime, other organochlorinated compounds for various uses were added to the pesticides, i.e. insecticides, fungicides, fumigants, herbicides, rodent-killing agents etc. To these uses promoting plant health, one should add other purely industrial uses of the PCBs (see Table of principal products).

By their very nature as insecticides, the organochlorinated compounds are used through dispersive techniques (including spraying from airplanes) which involve a very extensive contamination of land and marine environments. The total quantities introduced into the biosphere are immense, given their toxicity for the environment. In the beginning of the 70's, world production of organochlorinated compounds stood at about 300,000 tons per year and it was calculated that the total quantity of DDT synthesized since its discovery stood at three million tons.

## Monitored in the Mediterranean since 1975

By adopting the Barcelona Convention and the Land-Based Sources Protocol, the Mediterranean countries committed themselves to eliminate pollution caused by a certain number of substances listed in an Annex to the Protocol. They also undertook the obligation to establish and implement schemes and take all necessary measures to ensure such elimination especially by estab-

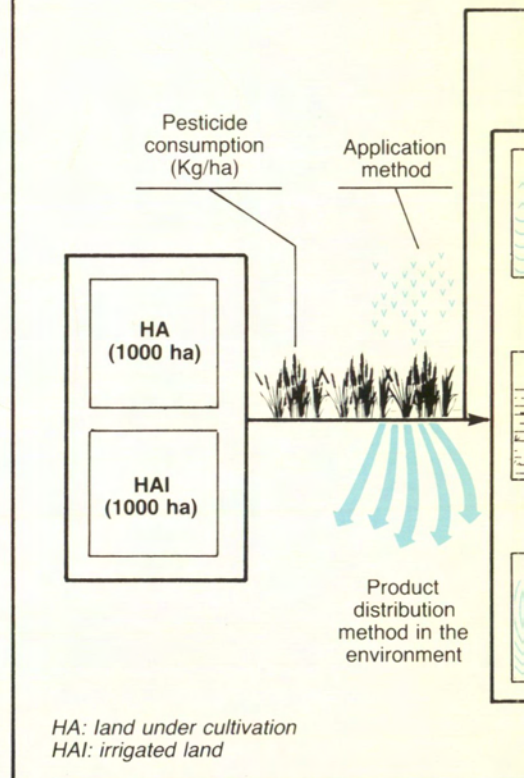
lishing common standards of emission and use. Among the substances contained in the list, the organohalogenated compounds, among which are the organochlorinated substances, were given high priority ever since the Mediterranean Action Plan was launched in 1975. The MED POL programme of monitoring and research on pollution has included, from that time on, a pilot project - MED III - concerning baseline studies and monitoring of DDT, PCBs and other chlorinated hydrocarbons in marine organisms, which was carried out under joint FAO-UNEP coordination. The red mullet, the Mediterranean mussel and the pink shrimp were selected for this monitoring with seasonal samplings for the purpose of analysis. The project led to a series of reports covering various areas of the Mediterranean published in 1986 as numbers 3 and 9 of the MAP Technical Reports Series. In 1985, a meeting on the technical application of the Land Based Sources Protocol recommended that an evaluation document be drafted for each of the pollutants, or groups of pollutants monitored. The document on organohalogens was published in May 1989 to serve as a basis for the proposal of specific measures to be submitted to the Contracting Parties to the Barcelona Convention. These data make possible the drawing up of a first status report on the Mediterranean, whereas until the mid-70's, PCBs and chlorinated pesticides had been studied systematically and in depth only in the USA.

## Causes and effects of pollution by organochlorinated compounds

The pollution of land and marine environment by these substances can be ascribed to several factors. From the stage of their production in industrial plants, the dumping of contaminated effluents has caused in the past numerous pollution accidents in rivers and coastal waters. However, DDT and other chlorinated hydrocarbons have been detected in many parts of oceans very far from the sites of direct inputs (e.g. in the snow of the Antarctic ice-cap, that is to say more than 4,000 km away from the nearest site of dumping or use of these products!). This would suggest, as was also confirmed by direct observations and measurements of atmospheric pollution off the coast of Monaco and over Ljubljana (Yugoslavia), that the atmospheric transport of organochlorinated substances is a lot more important than inputs through rivers. A comparative study carried out by GESAMP in 1989 reached the same conclusion. Atmospheric

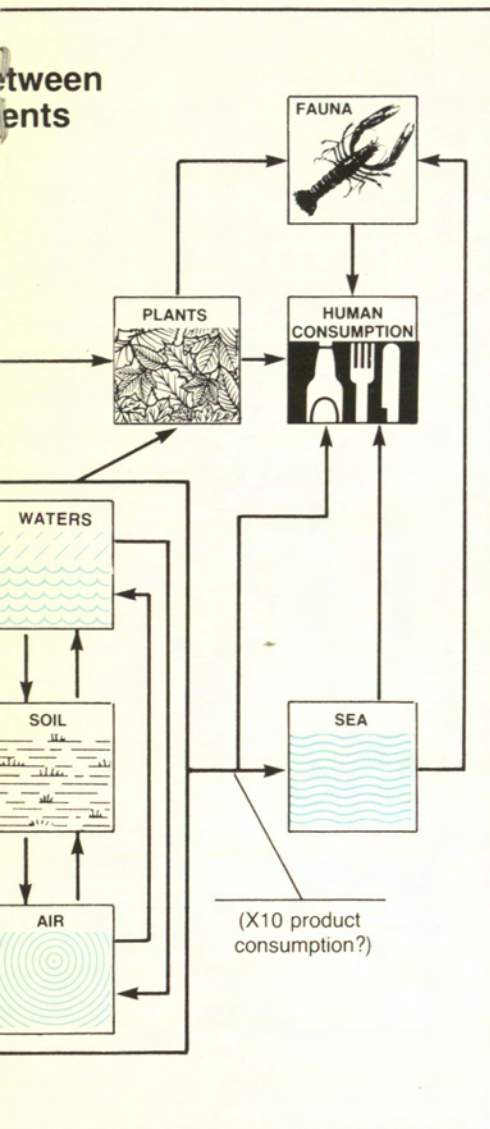
## Movement of a pesticide between environmental compartments

(adapted from the Blue Plan report)



pollution from these substances involves various physical phenomena such as ascending transfers of gaseous substances, erosion which releases into the air soil particles which have adsorbed insecticides and especially co-distillation phenomena with water steam on the surface of the earth. Starting from the atmosphere the opposite phenomena are observed: descending dust and rainfall which bring to the surface of the soil and the land/marine aquatic environments various pollutants. This general cycle followed by pesticides and PCBs (see simplified diagram opposite) includes various horizontal and vertical relays, since there is also contamination of continental waters through washing-off and run-off from agricultural lands on which insecticides have been used. In connection with pilot project MED POL X of MED POL- Phase I concerning the sources

# MEDITERRANEAN: CLOSELY MONITORED POLLUTANTS



and quantities entering the Mediterranean Sea from land based sources, it was estimated that approximately 90 tons yearly is the total load of organochlorinated pesticides due to surface run-off either directly or through water courses. Near river deltas (Rhône, Tiber, Po) and near the mouth of urban sewage outfalls (Saronic Gulf receiving effluents from the Athens-Piraeus area), the concentrations measured can be very considerable, especially in the sediments of the sea bed which act as a reservoir. Given the half-life of organochlorinated compounds, it is easy to predict that sediments will for several years be an important source of contamination of aquatic ecosystems; the highest concentrations concern those products whose use has been banned for a long time, precisely because it is they that are the least biodegradable. Given this contamination of land and

marine environments, certain organisms have the capacity to accumulate organochlorinated compounds: such are for instance the bivalve molluscs. In oysters the DDT content has been measured at a level 70,000 times higher than in ambient sea water and in mussels PCB content was 300,000 times higher! The contaminants attach themselves selectively to the fat of animals and give rise to considerable magnification phenomena through the food chain to man, while on the way they produce toxic effects for the more sensitive species of fish and birds; that means a decrease in fertility and populations. In addition to the fact that man consumes contaminated fish, molluscs and crustaceans, another pattern in the food chain goes as follows: soil / grass (animal fodder)/bovines / milk and meat / man and woman (mother's milk).

Since, on the basis of animal experiments, it appears that the main systems which are targeted by the organochlorinated compounds are the nervous system, the liver and the adrenal glands and that it is prudent to consider the PCBs and DDT as potential cancer causing substances for man, the scientific community has alerted governments and the competent authorities that adequate legislative measures should be developed and implemented.

## Anti-pollution measures in the Mediterranean

For all the reasons mentioned above, DDT was the first organochlorinated compound to be banned almost completely in many countries from 1972 onwards. In addition, the EEC issued in 1976 a directive limiting the use of PCBs to electrical appliances and setting very strict standards concerning storage, transport and elimination. Therefore the Mediterranean States, which are EEC members have all implemented these measures and in addition have adopted limit values in effluents and quality objectives set by the EEC for certain halogenated substances. Other countries have taken similar measures of control and banning, some even adopting stricter standards like Malta and Libya; they do not manufacture them and ban the importation of all organochlorinated compounds. The international organizations have not remained idle and FAO, which has pioneered action in this field, published in 1985 an international code of conduct for the distribution and use of pesticides as reference for those governments that want to develop or upgrade the relevant national legislation.

However, it is obvious that it would be

utopic to move to a total and indiscriminate ban of pesticides: such a ban would result in a spectacular decrease in agricultural and animal husbandry yields and perhaps there might again be the risk of famine which was frequent in Europe in times past even with a lot less people inhabiting it. The FAO code also points out that one must recognize the specific problems of the developing countries where the climatic, ecological, agronomic, social and economic conditions and thus the problems due to parasites are in general completely different from those of the countries that produce and export pesticides. All relevant measures should be taken in order to limit the use of non-biodegradable organochlorinated pesticides and to replace them with other compounds synthesized with new molecules which are environment-friendly; this goal would be achieved through concerted action of public authorities, researchers and manufacturers. As long as this new generation of pesticides has not been introduced in the market, it is necessary (the relevant recommendations being included in the UNEP document elaborated jointly with FAO, WHO and IAEA which has been extensively used in writing this article) to control the input of the organochlorinated substances already in the market and to monitor them in order to follow pollution trends. Control means among other things integrated action which the agronomic research centres of the developed countries have been recommending for the last 10 years: conservative use of pesticides linked with the establishment of buffer zones between the lands where pesticides are used and water masses, in order to prevent run-off from reaching the marine environment. Environmental protection is a complex matter where the advantages and disadvantages of each potential solution should be carefully pondered; furthermore one should keep in mind the consequences of an emotional call for the banning of all chemical agents which contribute to the development and progress of societies. The press has at times created unjustifiable confusion and alarm in the public opinion. One should patiently gather and examine all available data in order to establish distinctions among the various products and their uses vis-a-vis the risk they entail. This is the objective set by the Mediterranean states within the framework of MAP and the component MED POL of monitoring and research. Periodic reassessment of the situation (in general every two years) leads to readjustment, if need be, of antipollution strategy in the light of new data as they become available. In this respect, both chlorinated pesticides and PCBs are kept under strict monitoring in the Mediterranean.

(Continued from p. 5)

## THE MAIN AGENTS RESPONSIBLE



- **DDT** is the first organochlorinated insecticide (1939) introduced in the market (DDT is the abbreviation for dichloro-diphenyltrichloroethane). It was used for 30 years against a wide variety of agricultural and forest pests and against insect pests including disease vectors such as the tse-tse fly and the mosquito responsible for the spreading of malaria. It gives two metabolites, DDD and DDE.

- **HCH** (Hexachlorocyclohexane) is considered as one of the less persistent organochlorine pesticides. The gamma - isomer known as lindane is the one normally used as an agricultural pesticide.

- **Aldrin, Dieldrin and Endrin** form one family. Endrin is one of the most toxic of the chlorinated pesticides.

- **HCB** (Hexachlorobenzene) is generally considered as stable and persistent. It is used especially as a fungicide in grain storage.

- **Heptachlor** is degraded or metabolized in the environment and is more commonly found as its epoxide.

- **PCBs (Polychlorinated biphenyls)** are complex mixtures of biphenyl molecules at different degrees of chlorination. Ever since they were synthesized in 1929, they have been and in some cases still are produced in several Mediterranean countries. In the past they were used in hydraulic systems, as antifungal agents in paints, as adjuvants in the oils used in metallurgy; they are now used only in the manufacture of transformers and condensers (isolating liquids). The elimination of old electric appliances containing PCBs has been an important source of environmental pollution and the regulations governing it are becoming stricter as time goes by. The PCBs have ecotoxicological properties very similar to those of DDT. They also have a similar structure to DDT.

- **Dioxins** appear today as the most dangerous chemical pollutants; however they are not deliberately synthesized by man: they are found as impurities in certain herbicides and defoliants and can be formed during combustion of organochlorinated molecules. They are detected in a large number of industrial wastes.

### Birth of Eurocoast

A new European scientific association, **EUROCOAST** (European Coastal Zone Association for Science and Technology) was created in Marseille, France by the European members of the Working Group on the project "CORINE, coastal erosion" concerning 11 coastal projects of the EEC. The association aims at creating a European scientific network to promote scientific and technical cooperation, the exchanges on multidisciplinary topics and directories, improvement of knowledge and the protection and management of the relevant areas. At this point when MAP is refocusing on integrated planning and management of coastal areas, the creation of EUROCOAST and the announcement of a publication to circulate scientific information among the members of the association cannot but be greeted with satisfaction by all those concerned with the protection of the Mediterranean environment.

### The Second Mediterranean Seabird

#### Symposium

This symposium was organized by the Mediterranean marine Bird Association under the auspices of various international organizations such as UNEP, the Council of Europe and with the sponsorship of local and scientific Spanish authorities. It was held at Calvia on the island of Mallorca, March 21-26. Numerous ornithologists and marine biologists from nearly all Mediterranean countries participated; they endorsed and submitted to the relevant Spanish authorities the "Calvia Action Plan for Mediterranean island and coastal ecosystems" to ensure the survival of the habitats of plant and animal wildlife in the Mediterranean. In this very detailed Action Plan, the Symposium's participants recommended to the national governments and to the Economic Commissions of the European and Greater Maghreb Communities to take a series of measures for the protection of endangered Mediterranean species (sea turtles, seals) and of marine birds and their habitats; they further stress the need to intensify research, census taking of major seabird colonies and to develop strategies of conservation and feeding of certain species.

### Operation "Posidonia" on the

#### Mediterranean French coast

The French Committee for the Environment under its president Mme. Simone Veil sponsored activities at Cannes, France, on June 23, 1989 for the protection and restoration of underwater flora. They included reimplantation of Posidonia beds in the water of the Bay of Cannes and a meeting during which the Posidonia programme of "Mediterranean 2000" was presented. This

was an experiment with major practical implications, since the destruction of the Posidonia meadows disturbs ecosystem balance.

### A training course of the EEC for operations managers of waste water treatment plants in Mediterranean countries, October 1989

Within the framework of its policy of aid to the development of the Mediterranean Basin and protection of its environment, the Commission of the European Communities had organized through the European Institute for Water an intensive short training course for operations managers of waste water treatment plants in 1988. Considering the success of this course, the Commission has decided to hold a similar course in 1989. It will be held in Opatija, Yugoslavia (near Rijeka), October 2-12, 1989. To ensure efficiency the number of participants will be held at 20 divided among Cyprus, Malta, Turkey and Yugoslavia. All aspects of waste water treatment will be covered and the course will be completed by a technical visit to the treatment stations of Rijeka harbour. (For more information: European Institute for Water, Strasbourg 67000, France).

### Workshop on the elimination of garbage from the Mediterranean and its adoption as an effective Special Area under Annex V of Marpol 73/78. Athens, 29 and 30 June, 1989.

This workshop was organized by the Hellenic Marine Environment Protection Association (HELMPEPA) under the auspices of the Commission of the European Communities. It was attended by representatives of the relevant Greek government departments, municipalities and shipping companies, along with invited participants from other Mediterranean coastal States, the EEC, UNEP, IMO and the International Chamber of Shipping.

Sixteen papers were presented on all aspects of the problem of pollution of the Mediterranean Sea by garbage (ships, beach users, municipalities, pleasure craft, fishing).

The workshop considered the measures to be taken to reduce this form of pollution, especially through the ratification and implementation by coastal states of Annex V of MARPOL 73/78, leading to the early establishment by IMO of an effective date for the application of the Special Area requirements of Annex V, thus prohibiting the discharge of all garbage from ships into the Mediterranean except food wastes. The workshop adopted a resolution listing a number of important areas for action by Mediterranean coastal states, including public awareness campaigns and the strengthening of activities within the framework of the Mediterranean Action Plan.

## BOOKS - MAGAZINES

The **Technical Reports Series** now has 5 new numbers. The series comprises reports on the activities carried out in the framework of the various components of MAP (MED POL, Blue Plan, Priority Actions Programme, Specially Protected Areas, ROCC).

No. 26 published in English only is the **"Directory of Marine and Coastal Protected Areas in the Mediterranean Region"**. It contains a description, for each of the 18 coastal states, of the National Parks and Nature Reserves, that is of sites of biological and ecological value. It was established on the basis of SPA Centre/Tunis data, the data of the IUCN Centre in Cambridge and the answers to the questionnaire that the Mediterranean States sent back to the Co-ordinating Unit at Athens. There is a general introduction on each country and then for each of the protected areas there is a Data Sheet on the status, the geographic location, flora, fauna, management and uses. A second directory is being prepared and it will deal with sites of scientific, esthetic, historical, archeological, cultural or educational interest. (196 pages).

No. 27 **"Implications of expected climate changes in the Mediterranean region: an overview"** available in English only is co-authored by C. Sestini, L. Jeftic and J.D. Milliman. It deals with the results of studies carried out by the Mediterranean Task Team on Implications of Climate Change which was set up in 1987 by UNEP along with 5 other Task Teams to cover other Regional Seas. There is a general presentation of the characteristics of the Mediterranean Basin and its socio-economic aspects; then the authors turn to the greenhouse effect and climatic changes and their impact on the Mediterranean Coastal environment.

No. 29, **"Bibliography on effects of climatic change and related topics"** is a companion volume to No 27 and gives a detailed list of references on climatic changes (see MEDWAVES No. 14, III, 1988 p. 2 on this bibliography and the results of the Split meeting on climate changes).

No. 28 (English only), **"State of the Mediterranean Marine Environment"** was prepared by a group of experts on commission from UNEP's OCA/PAC. Overall coordination was shared among UNEP, IOC and FAO, while the Co-ordinating Unit provided technical support and coordination of the studies more specifically concerned with the Mediterranean (similar reports exist on the other regional seas as well). The state of

pollution of the Mediterranean is seen through marine contaminants, human activities affecting the sea, biological effects and pollution prevention and control strategies. There is an annex with a series of tables with data on the concentration of various contaminants in the compartments and marine organisms of the Mediterranean; furthermore, data on treatment facilities, estimates of pollution loads, population, life expectancy, tourism, motor vehicles in use etc. A list of acronyms and symbols completes the overall picture of the Mediterranean.

While all these volumes are of general interest, No. 30 targets the specialist as is indicated by the title:

**"Meteorological and climatological data from surface and upper air measurements for the assessment of atmospheric transport and deposition of pollutants in the Mediterranean basin"**. (English only). It is a report prepared in 1986-1988 under a research project within MED POL research Activity "L" on pollutant-transfer processes at air/sea interface coordinated by the World Meteorological Organization (WMO). It is a very valuable reference work for all scientists working on modelling atmospheric transport and deposition of pollutants into the Mediterranean.

**Medio Ambiente en Espana** (The environment in Spain) is an annual publication of the General Directorate on the Environment of the Spanish Ministry of Public Works and Urbanism. It corresponds to similar publications of the governments of the larger EEC countries, but the 1988 volume (the first was issued in 1984) is noteworthy because, as is stated in the introduction, "the launching of the first statistical study on the environment, and the adoption of three instruments of management if need be, i.e. regulations on environmental impact assessment, toxic and dangerous residues with the corresponding plan and the Research Programme on the environment, have made 1988 an especially important year in the short history of environmental policy in Spain". Very clear diagrams and tables on all major environmental problems, presented under separate headings for the various autonomous communities of Spain, accompany forecasts of the major environmental trends and a detailed presentation of MAP with a list of protected areas in Spain; there are also annexes containing information on administrative matters, a bibliography of environmentally-related publications and lists of research projects, meetings and seminars organized in 1988. All of the above material makes this 600-page monograph an indispensable reference work for all Mediterranean ecologists. The book was published in the first semester of 1989 when Spain held the Presidency in the EEC Council of Ministers and contains all aspects of Community policy on the environment.

### THE MAP CALENDAR OF MEETINGS

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|--|---|
| Workshop on Solid and Liquid waste and Management Codes of Practice.   | 25-28 Sept.<br>Split<br>Yugoslavia      |
| Meeting of Experts on Off-shore Protocol   | Sept.<br>Athens<br>Greece               |
| Meeting of the Bureau of the Contracting Parties   | 2nd Oct.<br>Athens<br>Greece            |
| Sixth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Related Protocols. | 3-6 Oct.<br>Athens<br>Greece            |
| Training Course on Practical Application of Renewable Energy Sources in the Region (to French speaking countries).   | 9-19 Oct.<br>Madrid<br>Spain            |
| Expert Meeting on Remote Sensing   | 11-13 Oct.<br>Montpellier<br>France     |
| Workshop on Code of Practice of Re-use of Municipal Wastewater.  | 16-18 Oct.<br>Cyprus                    |
| Training course and Inter-calibration exercise on microbiological methods.   | 16-21 Oct.<br>Tunis<br>Tunisia          |
| Workshop on evaluation of Historic Sites and buildings   | 30 Oct. - 1 Nov.<br>Split<br>Yugoslavia |

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## THE 1989 MEDITERRANEAN WINNERS OF THE "GLOBAL 500"

**T**wenty nine awards for European Environmental Achievement were given by UNEP to individuals and organizations from Europe for activities aiming at protecting and improving the natural environment. The awards are given annually on June 4, the day before the International Environment Day, within the framework of the "Global 500" roll of honour inaugurated in 1987 which will include 500 persons and organizations by 1991. The 1989 awards went to 114 individuals and organizations in 50 countries among which 5 Mediterranean States:

**FRANCE:** *Les amis de la terre*, French environmental protection group and *Francois Bourlière*, an environmental administrator and researcher on tropical ecosystems;

**GREECE:** *Nicos Margaris*, an ecologist active in protection of the Mediterranean, *Theodoros Skoulidakis*, a chemist who pioneered studies of atmospheric pollution impacts on historic buildings, notably the Acropolis of Athens, and *Vlassi Vellopoulos*, a social worker who has led successful campaigns for anti-pollution legislation and conservation of coastal areas;

**ITALY:** *Gaetano Allotta*, Agrigento, Sicily who directs the local sector of the Lega Navale Italiana (a volunteer group) working for the protection of the Mediterranean.

**TURKEY:** *The Society for Protection of Wildlife*, an Istanbul-based group founded in 1975 to campaign for protection of wildlife, particularly of migratory birds; and finally

**YUGOSLAVIA:** *The Gorani Movement of Serbia*, a volunteer group active in reforestation since 1960 and *Nijaz Abadzic*, a well-known journalist who produces a TV series which has covered 350 nature conservation topics.

## THE MEDITERRANEAN CONTRIBUTION TO THE FIFTEENTH SESSION OF THE GOVERNING COUNCIL OF UNEP

**D**elegates of 103 countries (44 ministers, a record number) participated in the Fifteenth Session of the Governing Council of UNEP convened in Nairobi, May 15-26, 1989. A climate of optimism prevailed due to the recent successes by UNEP (Montreal, Basel) and to favourable perspectives for new initiatives. The Governing Council is the governing body of UNEP and has met every two years since 1985. It defines policy, provides the Secretariat with guidelines and adopts actions to be included in the programme.

Generally speaking, the Fifteenth Session confirmed that there is a will to achieve the main objectives established for the next few years:

- International treaty on climate.
- Launching of work to draft a treaty on the conservation of biological diversity.
- UN conference on environment and development scheduled for May-June 1992.
- Combating deforestation and desertification.
- Management of dangerous wastes.
- Safeguarding of sanitary conditions and the quality of life.

Concerning financing, the ministers committed themselves to increase UNEP's budget by setting a target figure of \$100 million for 1992. 70% of the resources will be earmarked for 8 priority fields (mostly along the objectives enumerated above and including especially the oceans and coastal zones).

Six Mediterranean States (France, Greece, Libyan Arab Jamahiriya, Malta, Turkey and Yugoslavia) attended as members of the Council and eight (Albania, Cyprus, Egypt, Israel, Italy, Morocco, Spain, Syrian Arab Republic) attended as observers.

In the course of the general debate, Egypt stressed the importance of oceans and coastal areas as needing special attention. Israel noted the progress achieved within the framework of the Mediterranean Action Plan in eliminating pollution from its beaches. The EEC representative

mentioned the Community contribution to MAP and announced the launching of an extensive environmental programme for the Mediterranean which will be the basis for effective action at regional level.

The Committee of the Whole established by the Council reviewed the UNEP programme proposals for 1990-1991. During the discussion, France supported the regional approach and the trend toward self-sufficiency of the regional programmes, where solidarity plays a major role. It invited UNEP to concentrate its efforts on the Mediterranean and encouraged the search for new partners.

Malta stressed the role of ROCC and announced its intention to double its present contribution to UNEP.

Yugoslavia recalled its active support for MAP, the recently approved law giving PAP/RAC, Split a federal status, as well as its close cooperation with Italy on the protection of the Adriatic.

The International Union for the Conservation of Nature and Natural Resources (IUCN) confirmed its continued interest in the Mediterranean and drew the Council's attention to the Mediterranean Monk Seal, "the most endangered seal species in the world".

In conclusion the Council unanimously approved the proposal of Dr. M.K. Tolba, Executive Director to include oceans and coastal areas as one of UNEP's priority areas for the coming biennium and extended the Mediterranean Trust Fund through 31 December 1991.

Given the results of the Session, a climate of euphoria prevailed among all participants and Dr. Tolba pronounced this Session as "the best we have ever had" and added:

"You have given us clear guidance and strong support. We have said goodbye - for good, I hope - to the time when UNEP could be distracted by small-scale commitments which so rarely achieved results. We got down to brass tacks and we have emerged with a clear-cut, intelligently focused programme of action. Firm commitments were made, time frames agreed and responsibilities assigned".