

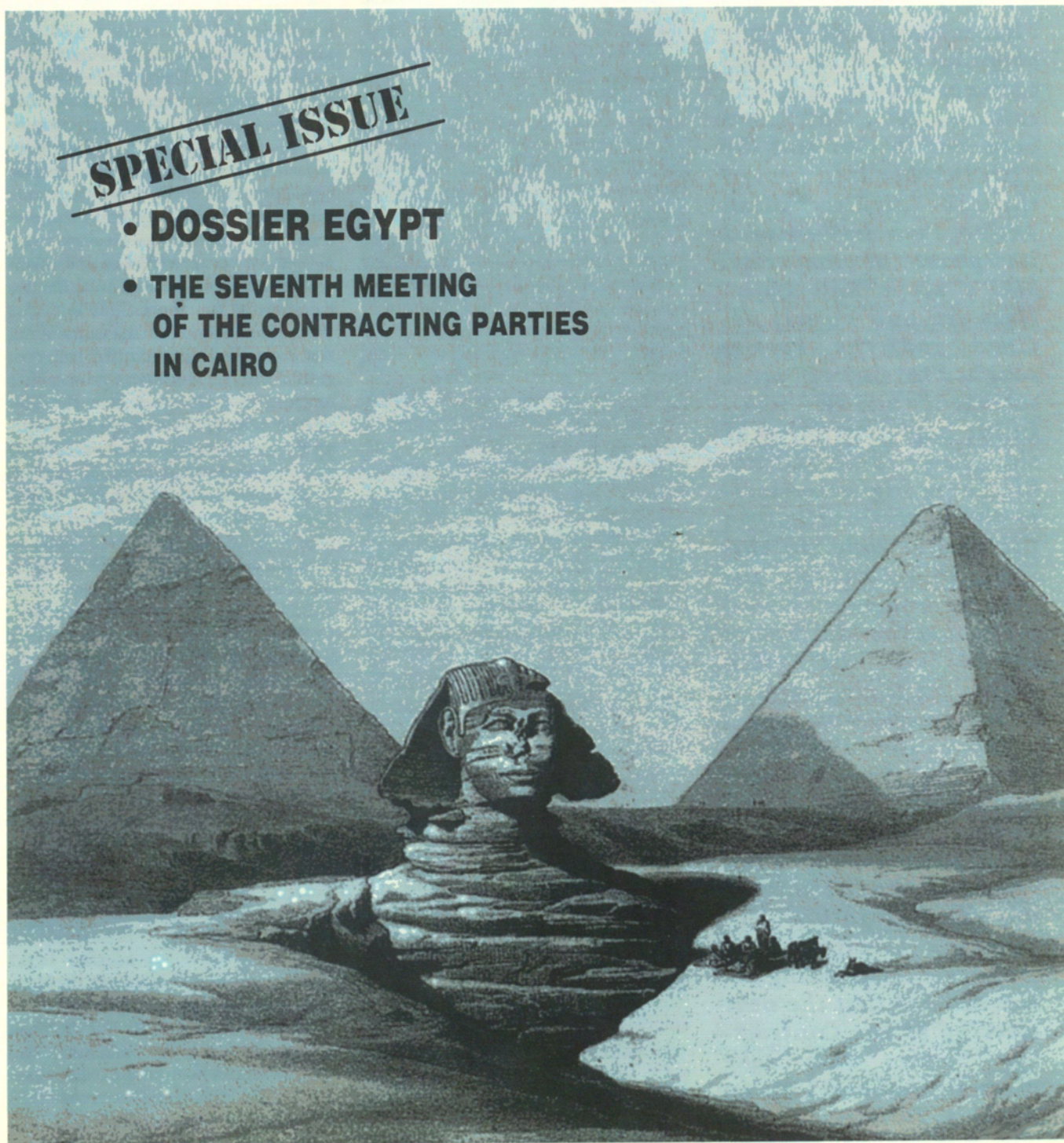


MEDWAVES

MEDWAVES MAP COORDINATING UNIT NEWS BULLETIN PUBLISHED IN ENGLISH/ARABIC/FRENCH NO 24 WINTER 1991/1992

SPECIAL ISSUE

- **DOSSIER EGYPT**
- **THE SEVENTH MEETING
OF THE CONTRACTING PARTIES
IN CAIRO**



THE SEVENTH MEETING OF THE CONTRACTING PARTIES IN CAIRO : CONCERN OVER STRINGENCY AND EFFICIENCY

Fifteen years after the adoption of the Barcelona Convention, the Mediterranean States, which met between the 8th and the 11th October last, proved that the Mediterranean Action Plan has entered its phase of maturity. MAP's scope and objectives are now clearly defined and the Parties sought to inject more stringency and efficiency in the implementation of the programme, firstly by giving highest priority to concrete action on the coastal zone. In this spirit of refocusing, the Mediterranean Coastal States and the EEC finally agreed on the main points on their agenda : budget and work programme for 1992-1993; new assessments and measures to combat pollution; airborne pollution; cetaceans. The Bureau will decide on the procedure to follow concerning certain legal matters still pending. It was decided that the next meeting of the Contracting Parties will take place in October 1993 in Antalya, Turkey.

The Seventh Ordinary Meeting of the Contracting Parties to the Barcelona Convention was held in Cairo from 8 to 11 October. Five delegations were represented at the ministerial level. Seven United Nations Organizations, nine NGOs and two riparian States of the Black Sea (Bulgaria and Rumania) were also represented by observers. Even the site of the meeting had a symbolic meaning: for the first time since the founding of the MAP, its supreme decision-making body was meeting in a country of the Southern Coast of the Mediterranean. The Mediterranean countries, by reelecting the President of the Bureau, Mr. Atef Ebeid, stressed the crucial role of Egypt in the region. As soon as the Meeting opened, it was announced that the Chiefs of Delegations, at an informal meeting which had just been held, had agreed on the composition of the new Bureau. All members were unanimously elected without recourse to balloting. The authority of the Executive body of the Contracting Parties is thus strengthened by this consensus. The discussion that followed confirmed this, since the meeting entrusted the Bureau with the decision on certain legal and financial matters that the former left pending.

Mr. Tolba's exhortations

Dr. M.K. Tolba made it a point to honour the first day of the Meeting with his presence. The Executive Director of the United Nations Environment Programme since 1975 expressed his special pleasure in welcoming in his home country a Regional Seas' Programme of which he is especially fond. Who, more than he, was in a position to assess the progress accomplished since the signing of the Barcelona Convention? In his introductory statement, the

Executive Director noted the reasons for satisfaction as well as those for dissatisfaction. On the positive side of MAP for the past biennium, Dr. Tolba mentioned inter alia Albania's recent accession, which brings in the last Mediterranean family member, the drafting and approval by the Technical Committees Meeting of new legal texts, the new series of anti-pollution measures, the Agreement between Tunisia and UNEP on the Specially Protected Areas Centre, the scope of the co-operation with the World Bank. Then moving to the areas that cause dissatisfaction, Dr. Tolba regretted the fact that States were taking too long to draft and review the Off-shore Protocol, the lack of enthusiasm on the part of several countries to send in completed questionnaires and annual reports on measures adopted to implement the Barcelona Convention and its related Protocols, the chronic delays in the payment of pledges by the Contracting Parties and the lack in several coastal States of national contingency plans. Dr. Tolba concluded his statement with the following: "*Our common goal is to protect and rehabilitate the Mediterranean as a basis for the sustainable development of all countries around it. Treaties and plans will not do that. Actions will..... How far are the Contracting Parties ready to support such an exercise financially and with human resources?*"

The approval of the budget and work programme

The Executive Director put the Mediterranean countries in front of their budgetary responsibilities: "*If the Contracting Parties to the Barcelona Convention sincerely want to have a co-ordinated effort to help protect the Mediterranean environment, the sum re-*

quired (less than 6.7 million U.S. dollars per year) is extremely low. It is the price of three battle tanks. Is that too much to ask for the protection of the Mediterranean environment? I leave this to your judgement". The discussion on the budget was at times both heated and lengthy. Were the countries going back on their commitment to grant the financial support needed? Two of the NGOs present, Greenpeace International and the European Environmental Bureau, took the floor to deplore this lack of enthusiasm while the state of the environment continues to worsen. However, it is only just to note in this connection that at no time did any delegation question the essential fact, i.e. the necessity to endow the Mediterranean Action Plan with the means for its implementation through a reasonable increase of the budget and to maintain the level of activities approved by the technical committees. At the most, because of serious financial difficulties, several countries asked for the programme to be restructured with a view to reducing certain administrative costs to the benefit of concrete field projects. Finally, the draft budget was approved on the basis of a compromise formula proposed by the Bureau. The 1992 Programme budget would be increased by 10% above the 1991 figures and the 1993 budget would be increased by a further 10% above the 1992 figures, subject to a comprehensive review by the Bureau of the structure of the programme and the impact of inflation and exchange rate movements. Thus for the next biennium, the grand total of US \$ 6,268,000 and \$ 6,895,000 for 1992 and 1993 respectively were approved. This would make possible for the Mediterranean Action Plan to honour all its commitments within the framework of its various components.

Legal matters

Concerning the Offshore Protocol, Dr. M.K. Tolba had stated at the opening of the Meeting: "I feel time is already ripe for the Parties now to ask for a Meeting of Plenipotentiaries to finalize the Protocol and adopt it". Sever-

al delegations spoke along the same lines and were of the opinion that the draft Protocol as it stood was satisfactory and that any pending issues were of a political nature which could be dealt with only by a plenipotentiary confer-

ence. It was finally agreed to authorize the Bureau to determine whether a further meeting of experts would be needed or whether to recommend the convening of the Conference of plenipotentiaries at the appropriate time, in full consultation with the Contracting Parties. The Meeting further authorized the Bureau to explore the possibility of including the adoption of the amendments to the Dumping Protocol (concerning the banning of incineration of wastes at sea and the dumping of industrial wastes in the Mediterranean) in the framework of the same conference, which would simplify procedures and reduce costs. Regarding Annex IV to the LBS Protocol concerning airborne pollution, the meeting, after considerable discussion, approved the text with the procedural reservation of one delegation. The depositary State (Spain) would be asked to circulate the text to the Parties to the LBS Protocol and to invite them to notify it of any reservations within a period of three months.

Moreover, concerning the last text of a legal instrument submitted to it, i.e. the draft Protocol on Transboundary Movements of Hazardous Wastes and their Disposal (which includes the main provision of the Basel and Bamako Conventions), it was agreed, with the reservation of one delegation, to authorize the Secretariat to convene a meeting of a working group of technical experts in order to finalize the Protocol. The Secretariat should seek external financial support for such a meeting. In the event that the draft Protocol is approved by the working group, the Bureau should consider authorizing the Executive Director to convene a conference of Plenipotentiaries for the adoption of the Protocol. Finally, the Meeting approved an Action Plan on the conservation of the cetaceans (the principle was approved and the Plan will be referred to the National Focal Points for further elaboration); in addition the Meeting endorsed assessments and measures to combat pollution from organophosphorus compounds, persistent synthetic materials, radioactive substances and pathogenic micro-organisms. This new series of measures adopted in Cairo is then added to the

THE MEDITERRANEAN, A CASE STUDY AT THE RIO CONFERENCE

"...The less than the US \$7 million budget is not the solution to the Mediterranean problems. It is simply the cost of developing the co-ordinating programme. The cost of halting marine degradation is one of the subjects on which we are working jointly with the UNCED Secretariat for the next meeting of its Preparatory Committee. We chose the Mediterranean as the case study. The first estimate for dealing with land-based sources of pollution only (apart from other polluting coastal activities) is between US \$25 and 100 billion in the next 20 years, i.e. between US \$ 1 and 5 billion annually. Total cost of stopping the deterioration would be 2 to 3 times these figures. But these figures are not as shocking as they may sound at first instance. Annual income from tourism alone is around 3 billion US \$ in Yugoslavia and 10 billion in France. All these billions could easily be lost if degradation of the Mediterranean continues..."

(Dr. Mostafa K. Tolba,
Executive Director, UNEP
in his opening address
at the Cairo Meeting,
8 Oct. 1991).

measures adopted in Athens in 1987 and 1989 (common standards on mercury and the quality of shellfish-waters, measures concerning used lubricating oils, cadmium and cadmium compounds and organotin compounds). Given their importance, we felt it useful to present these measures in a summary form (see opposite) along with the relevant scientific rationale.

Full speed ahead toward the coast

Following the presentation of the Progress Report by the Officer-in-Charge *ad interim* of the MAP, Mr. L. Jeftic, the majority of those representatives that took the floor in the ensuing general debate, stressed that the Coastal Area Management Programme should be reinforced. One delegation even deplored the fact that 4 years after the

decision to refocus MAP activities was taken, only 10 to 15% of MAP resources was today devoted to that priority. The representative of Albania, who participated for the first time as a Party to the Barcelona Convention, stated that his country was committed to fulfilling all its tasks and that it had submitted a request, in the context of the Coastal Area Management Programme, for support for a project to protect a coastal area of great historical interest. Algeria and Morocco also declared their desire to be included in the CAMP. Both requests were endorsed by the Meeting. In addition to the 4 programmes already launched (Kastela, Izmir, Rhodes, Syrian coast) and the 2 programmes in preparation (Fuka, Egypt and Sfax, Tunisia), three new programmes are going to be launched shortly in Albania, Algeria and Morocco. The appropriate line

in the budget provides for \$ 515,000 and \$535,000 for 1992 and 1993 respectively (versus \$338,000 in 1991). It is stipulated that each of the beneficiaries will contribute toward the implementation of the programmes. This is doubtless one of the most tangible results of the Cairo Meeting which would in the short run enhance the synergy of the various MAP components on field activities. Before adopting the Report and prior to the closure of the Meeting, the Participants accepted the invitation of Turkey to host the Eighth Meeting of the Contracting Parties at Antalya from 12 to 15 October 1993. Until then, the important decisions expected to be taken by the international community at the Rio Conference will, no doubt, have an impact on the Mediterranean Programme. □

THE NEW BUREAU OF THE CONTRACTING PARTIES ELECTED IN CAIRO

The Mediterranean Coastal States and the EEC unanimously elected the following members of the new Bureau of the Contracting Parties to hold office until the next Ordinary Meeting to be held in Antalya, Turkey in October 1993:

PRESIDENT

Mr. Atef Ebeid, Egypt, Minister of Cabinet Affairs, Minister of State for Administrative Development and Minister in charge of the Environment. Mr. Ebeid was president of the outgoing Bureau and his re-election illustrates the confidence placed upon him by the Contracting Parties. He will be able, in his new term of office, to capitalize on the experience, the contacts and the esteem that were the fruits of his first term of office.

VICE-PRESIDENT

Mr. Etienne Franzi, Monaco, Délégué Permanent Adjoint auprès des organismes internationaux. The small Monegascan principality has privileged links with MAP, since it hosts the International Laboratory of Marine Radioactivity (ILMR) of the IAEA, whose contribution to MEDPOL is well known, especially as concerns the data quality control programme.

VICE-PRESIDENT

Mr. Mohamed Adel Hentati, Tunisia, Agence nationale de protection de l'environnement (ANPE), Présidence du Conseil. The election to the Bureau of the Head of the Tunisian delegation comes after the restoration of an atmosphere of full co-operation between UNEP and Tunisia, as illustrated by the Agreement on the Specially Protected Areas Centre.

RAPPORTEUR

Mr. Uri Marinov, Israel, Director General, Ministry of the Environment. Mr. Marinov has been a long-time companion of MAP which he helped set up through his experience and sound advice.

The new bureau will play a seminal role in the next Biennium, since the Contracting Parties have authorized it to take decisions on procedural and legal matters: Offshore Protocol, amendments to the Dumping Protocol, refocusing of MAP, budget review with a possible readjustment for 1993. Mr. Ebeid took a commitment on behalf of the Bureau "to work only within the framework of the Meeting's decisions" and to implement the Meeting's instructions. He will also look into the improvement of the implementation of MAP to be included in the Agenda of the Eighth Ordinary Meeting at Antalya. □

POLLUTION MEASURES ADOPTED IN CAIRO

As of Art. 5 of the LBS Protocol, the Mediterranean States should draft measures to eliminate pollution by substances listed in the Annex of the abovementioned Protocol. In 1985, the Expert Meeting of the technical application of the LBS Protocol proposed that the measures to be submitted to the Contracting Parties be based on an "assessment document" prepared by the Secretariat.

For each one of the pollutant categories we give now the main points of the relevant assessment document and the measures adopted by the Cairo meeting.

1 Organophosphorus compounds

The available information on these products is limited and fragmentary. They include a series of pesticides, some of which are highly toxic. They reach the marine environment through rivers, the atmosphere, agricultural runoff and industrial point sources. On the whole, the concentrations in the sea (coastal waters and fish) are lower than those found in freshwater systems. The Contracting Parties, taking into consideration the precautionary principle, agree to promote measures to reduce inputs into the marine environment and to facilitate the progressive elimination by the year 2025 of organophosphorus compounds hazardous to human health and the environment. They also agree to move immediately toward monitoring the presence of organophosphorus compounds in "hot-spot" areas and, if concentration levels so warrant, to take the necessary measures for the reduction of pollution.

2 Persistent synthetic materials

What is included here is, in plain English, man made debris or litter unconsciously left behind on coastlines or in the sea. The studies made on their presence, distribution and quantities



The rostrum of the Seventh Meeting of the Contracting Parties at the Marriott Hotel in Cairo. Left to right: Mr. W. Mansfield, Deputy Executive Director, UNEP, Dr. M.K. Tolba, Executive Director of UNEP, Mr. A. Ebeid, President of the Bureau and Egyptian Minister in charge of the Environment, Mr. L. Jeftic, Officer-in-Charge of MAP, Mr. I. Dharat, Programme Officer of MAP Co-ordinating Unit.

are still very limited to allow a quantitative and qualitative assessment of the problem. However, it is known, especially on the basis of a survey carried out in the framework of MED POL that 3/4 of the coastal litter is composed of plastic materials, the remainder of metal, glass, lumber and wood, styrofoam etc. In the Mediterranean, the container fraction of the coastal litter consists mostly of those used for beverages, food and cosmetics. Damage to the environment affects mostly fish, marine mammals, sea turtles and birds through entanglement and ingestion; also damage to free navigation through entanglement in ship propellers and damage to beaches by deterioration of their aesthetics which has an economic impact on tourism in the Mediterranean. The Contracting Parties, agree to design and implement educational programmes, mainly for youngsters but also to increase general public awareness and participation, aimed at the prevention of littering beaches and coastal waters, as well as open seas and river beds, also to encourage the use of biodegradable synthetic materials and promote research on the development of such materials and to promote beach cleaning operations.

3 Radioactive substances

Since many nuclear installations in the Mediterranean Region are located along major rivers, radionuclides discharged from these installations enter into the Mediterranean through rivers. While travelling along the rivers, these discharged radionuclides are subjected to various geochemical processes, so that the concentration of the radionuclides entering the marine environment are lower than the original levels. The major route of radiation exposure of man to artificial radionuclides occurring in the marine environment is through ingestion of radiologically contaminated marine organisms. On the basis of an evaluation in the Mediterranean of the levels of radioactive substances before and after Chernobyl, it can be stated that the effects of the presence of artificial radionuclides in the Mediterranean on living marine organisms are, at present, negligible and that the increased radiation risk for man may correspond to one case of severe harm in a million, mainly due to artificial radionuclides introduced by fallout from nuclear weapon testing. The Contracting Parties agree that pertinent recommendations by competent international organizations concerning emissions of radionuclides

will be respected; the same goes for ICRP and human health basic principles for radiation protection of man; further they agree to inform the Co-ordinating Unit of MAP about the annual amounts of radionuclides released from the nuclear installations on national territories and finally, at international level, to harmonize methods and reporting of monitoring operations on releases of radionuclides into the Mediterranean marine environment, in order to facilitate the impact assessments of the releases at a regional level.

4 Pathogenic micro-organisms

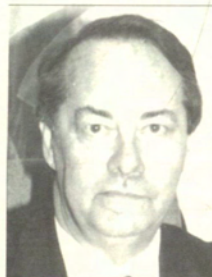
A considerable number of species and strains of pathogenic micro-organisms is known to be present in varying degrees of population density in Mediterranean coastal waters and/or shellfish. Some of these are endemic while the majority are released into the immediate coastal zone in sewage effluents. There is also evidence that in certain cases, direct release by affected human subjects while bathing may also be a route of entry. It is difficult to estimate even approximate morbidity figures specifically linked with marine pollution. Monitoring records over the last decade show a steady decrease in such bacterial concentrations, probably as a direct result of improved sewage treatment and disposal methods and associated hygienic procedures.

The Contracting Parties agree that every effort should be made to ensure adequate sewage treatment disposal facilities for coastal cities and towns; that more care should be devoted to the maintenance of proper hygienic quality in public beaches and that it would be premature, at the present stage, to consider substitution of the interim criteria for bathing waters jointly adopted in 1985, with other criteria, and, similarly, equally premature to consider modification of the criteria for shellfish waters, jointly adopted in 1987. The Contracting Parties also agree to carry out additional, more in-depth microbiological and epidemiological studies oriented toward priority target topics. □

MR. SALVINO BUSUTTIL, NEW MAP COORDINATOR TOOK OFFICE ON THE 1ST OF NOVEMBER 1991

Mr. Salvino Busuttill, the new Head of the Mediterranean Action Plan, called upon to succeed the Italian Aldo Manos, hails from Malta. The choice of a personality from the South of the Mediterranean is quite significant at a point when, as was clearly seen in the Cairo Meeting, many involved in MAP are asking for a new definition and a more balanced geographical distribution of the activities and structures of the Programme. 55-year old Salvino Busuttill has an impressive list of academic achievements and international appointments to his credit; the various fields he has been active in are reminiscent of his current tasks: economic development, socio-economic planning, educational administration and planning, environment, agronomy, ocean resources, Euro-Arab dialogue, etc. However, all along the multidisciplinary themes, runs, one is quick to discover, a recurrent theme: the Mediterranean, its environment and its future.

A Philosophy graduate of the Gregorian University, Rome, Mr. Busuttill holds two Ph.D.s, one in Social Sciences from Aquinas University, Rome, and another in Economics from Manchester University. At 28, Salvino Busuttill became the youngest ever Professor at the University of Malta, heading the Department of Economics and becoming Dean of the Faculty of Arts. In Malta he has been a member of various commissions and organizations, heading several of them. One may mention the fact that, in 1972, Professor Busuttill represented his country to the United Nations Conference on the Environment in Stockholm, which led to the setting-up of UNEP and a global approach to environmental protection for the first time ever. Five years later, he became Director of Human Settlements and Socio-Cultural Environment at UNESCO in



its headquarters in Paris. His efforts focused on bringing about, especially in the Third World, a new conception of economic development which respects the environment. "It is sometimes felt", says Mr. Busuttill, "that development should have priority over environmental protection. This is a short-

term view because, once the environment is harmed, it is harmed forever, and it is the quality of life which ultimately suffers".

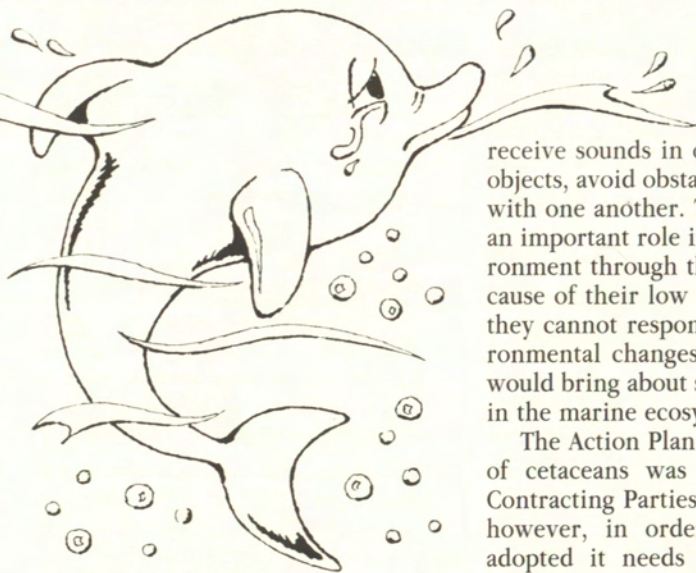
Between 1977 and 1986, Salvino Busuttill administered at UNESCO a training programme for human settlements managers with special focus on the Mediterranean. In 1986 he was instrumental in setting up in Malta the Foundation for International Studies of which he becomes the Director General; under his leadership the Foundation becomes the crossroads of Mediterranean exchanges: Workshops, conferences, technical meetings, training courses for fellowship-holders on issues of high priority for the region and especially on the environment.

Salvino Busuttill has also found the time to author or edit several publications, two of which are on the Mediterranean: *the Mediterranean in the new Law of the Sea (1988)* and *Water Resources and Tourism in the Mediterranean Islands (1989)* (in French). He confides that he reads "voraciously", especially history and biography. Twenty years after the Stockholm Conference, the new MAP Coordinator will have the task of presenting to the Rio Conference, the common experience of the 18 Coastal Mediterranean States and the EEC. He will do it with the conviction, patiently acquired over the years, that the problems of the Mediterranean, even when they seem purely technical, cannot be disassociated from the long cultural past that is the exceptional feature of the region. □

Sad reminder of the need for a Cetacean Action Plan

MASS MORTALITIES OF MEDITERRANEAN DOLPHINS

In 1991, as in the previous year, hundreds of dead dolphins were found on Mediterranean coasts. Abnormally high numbers of carcasses of the striped (blue and white) dolphin first appeared on shores in the Valencia region and in the Balearic Islands during the summer of 1990. In the autumn, mortalities were also reported from the Mediterranean coasts of France, Morocco, Algeria and from the west coast of Italy. In the summer of 1991, the same phenomenon occurred in the south of Italy, then in the Ionian Islands of Greece. According to Greenpeace International (which gave us this information on the occasion of the Cairo meeting) it seems that two viruses are responsible for these deaths, a morbillivirus and a herpes virus. Other marine mammals have also been similarly affected. Is it then a simple case of epidemic striking these cetaceans, where man bears no responsibility? It does not seem so. Analyses carried out on the dead animals have shown high concentrations of marine pollutants like the PCBs. It thus seems that marine pollution could considerably increase mortality by making these species less resistant to infection agents, such as the viruses identified. Not much is known about the dolphin populations in the Mediterranean. The blue and white dolphin is a deep-water species and the number of carcasses found on beaches is but a tiny fraction of the real mortality rate. In 1990, fishing vessels and helicopters sighted dead animals floating in the high seas. It is estimated that many thousands of animals died in this way in 1990. Unfortunately, the case of dolphins isn't an isolated one. All cetaceans are cur-



rently threatened directly or indirectly: accidental catches by fishermen (mostly dolphins), commercial catches (to use the meat to catch crustaceans and certain fish species, something that is secretly done in certain parts of the Mediterranean), systematic extermination (dolphins) since many organisms eaten by the cetaceans are of commercial interest and the mammals are seen by fishermen as competitors. Some indirect factors are less food for the cetaceans due to smaller stocks of fish, cephalopods and crustaceans and obviously pollution. The small Mediterranean cetaceans are among the species that show the highest concentration of pollutants (mercury, lead, organohalogen compounds) affecting their reproductive capacity. Unlike the seals that can still live on land, cetaceans have undergone profound transformations as mammals and they have become totally independent from it. That's why these true mammals were thought of as fish for a long time. Since their eyesight has lost its acuity in the oceans, evolution has given them specialized organs to emit and

receive sounds in order to recognize objects, avoid obstacles, communicate with one another. The cetaceans play an important role in the marine environment through the food chain. Because of their low reproduction rate, they cannot respond rapidly to environmental changes. Their extinction would bring about serious imbalances in the marine ecosystem.

The Action Plan for the protection of cetaceans was endorsed by the Contracting Parties Meeting in Cairo; however, in order to be formally adopted it needs to be studied in depth. Moreover, its subsequent implementation was made dependent on external financing. These delays and conditions don't augur well; time presses as was clearly seen with the mass mortalities in the last 2 years. Thus, each Mediterranean country, without waiting for an official Action Plan no matter how elaborate, can take urgent measures. One priority action must be to educate and inform fishermen about the consequences of abusive fishing methods. This measure does not require either important funds or special infrastructure, which means no such argument - usually marshalled to justify lack of intervention - can hold water here. As concerns habitat protection - or protection of the sea bed - it can only be achieved within the framework of the general protection of the sea from pollution. And here no illusion is possible: in the next few years a lot of dolphins may fall victim to our negligence. □

THE CHRISTOPHER COLOMBUS YEAR AND THE ENVIRONMENT

The Bureau international des expositions de Paris entrusted the city of Genoa with the organization of the international exhibit "Colombo 92" on the occasion of the 500th anniversary of the discovery of America. Naturally, the exhibit will deal with maritime history and the history of navigation, current problems of navigation, shipbuilding, seafaring techniques etc. The Italian Parliament gave "Ente Colombo" the mandate of preparing the various activities, among them scientific meetings on the protection of the marine environment. The two regions linked with the expedition of Christopher Columbus, i.e. the Mediterranean and the Caribbean, will come together in Genoa, Feb. 12-14, 1992 by means of the Secretariats of their respective Action Plans to discuss "Regional Programmes and environmental protec-



tion: an exchange of experiences between the Mediterranean countries and the countries of the Caribbean on the protection of the marine environment". Three main areas will be dealt with: water quality (serious pollution problems and corrective measures), change

in sea water levels (with its anticipated impact) and coastal areas management (integrated planning, impact of tourism, promotion of historic centres). There will be an introductory presentation on each Action Plan and discussion will follow. In June, an especially significant month for world environment with the Rio UNCED, Ente Colombo will organize four other events: the 34th Annual Conference of Institutes on the Law of the Sea (22-25 June, 1992), the International Conference on current issues of maritime transport (22-26 June) and finally the Genoa Seminar on pollution. (For further information, please contact Dr. P. Schiavo, Ente Colombo 92, Palazzo Serra Gerace, via Sottoripa, 16123 Genoa, Italy, tel. 10 284111/Fax 10 292693). □

FOCUS ON YOUR WORLD!

An international photographic competition is organized by UNEP on the occasion of the June 1992 Rio Conference.

The year 1992 will be of great importance for both the environment and the world that we are going to bequeath to our children and grandchildren. The UN Conference on Environment and Development to be held in June in Rio will coincide with the 20th anniversary of UNEP born with the Stockholm conference of 1972 and with the world Environment Day celebrated in the beginning of June every year. UNEP is organizing a worldwide photographic competition sponsored by Canon, Inc. to draw attention to the environmental issues which will be addressed at the Rio conference. The competition invites the submission of photographs with the theme "Focus on Your World", from professional and

amateur photographers world wide. The winning photographs will be exhibited throughout the world in a subsequent travelling photo exhibition which will generate global awareness of environmental problems. The most suitable entries will also be preserved in a UNEP photographic library which will provide a powerful visual presentation of today's most pressing environmental problems. Deadline for submission of entries is 29 February 1992. A selection committee will pick the best photographs, which combine the visual impact and technical skill, for awards and for inclusion in the exhibition. A panel of judges will award prizes in 3 categories: professional division (1st prize, US \$20,000), amateur division 1st

prize, US \$10,000) and children's division (1st prize US \$1,000). There will also be second and third prizes and honorary mentions in each division. In total 206 photographs will be awarded different prizes, medals, photographic equipment, study grants for young people etc. The prize winners will be announced at an award ceremony to be held in Rio de Janeiro on June 6, 1992 which will also commemorate World Environment Day. If you'd like to participate in the competition write for an application form to: UNEP Photographic Competition c/o Dentsu Burson Marsteller, Sogo Kojimachi No. 3 Building 6 Kojimachi 1-Chome, Chiyoda-ku, Tokyo 102, Japan. □

PUBLICATIONS MAP/UNEP

UNEP/FAO:

Final reports on research projects (Activity G). This document contains 7 studies in English and 1 in French, preceded by an introduction in English and one in French. The research area (Activity G) of the MED POL Programme comprises toxicity, persistence, bioaccumulation and the cancerogenic and mutagenic character of certain substances listed in the Annexes of the LBS Protocol and the Dumping Protocol. The topics discussed range from serum enzymes in fish as biochemical indicators of marine pollution to an experimental study of the impact of cadmium on the fertility of *Salmo Gairdneri*. (MAP Technical Reports Series No. 48, pp. 126).

UNEP/WHO:

Biogeochemical cycles of specific pollutants (Activity K). Survival of pathogens. These too are the final reports on research projects in another MED POL activity area, the biogeochemical cycle of some pollutants especially affecting public health (mercury, lead, survival of pathogens in the Mediterranean Sea etc.). This document contains studies on survival, adaptation and phenotypic and genetic evolution of some pathogens in the marine environment. Two studies are in English and two in French. (MAP Technical Reports Series, No. 49, pp.71).

UNEP:

Bibliography on marine litter.

This is one in a series of specialized bibliographies compiled by the MAP Co-ordinating Unit. (In the MAP Technical Reports Series have already come out bibliographies on climate changes, pollution by organotic compounds and aquatic pollution by organophosphorus compounds, Nos. 29, 35 and 44 respectively). This volume contains 440 references, listed alphabetically by author or corporate body and assigned a number. At the end there is an index of topics included (impact, sources, distribution, types, quantities etc.) which makes it easy for the reader to find the authors he is looking for. The bibliography was put together by Athina Davaki, librarian

at the Co-ordinating Unit on the basis of, *inter alia*, literature searches undertaken by the National Documentation Centre of the National Hellenic Research Foundation, Athens, (MAP Technical Reports Series, No. 50, pp.62).

UNEP/FAO:

Final Reports on research projects dealing with mercury, toxicity and analytical techniques. 7 studies in English and 1 in French on mercury (evaluation, bioaccumulation and toxicity on certain marine products), on the biogeochemical cycle of organophosphorus pesticides and on the methodology for the determination of total arsenic in marine organisms. (MAP Technical Reports Series No. 51, pp. 166).

UNEP/FAO:

Final Reports on research projects dealing with bioaccumulation and toxicity of chemical pollutants. Seven studies in English and 1 in French on: different responses to mercury in edible species; cadmium in a stretch of coast facing a thermoelectric power plant; importance of gelatinous macroplankton in the storing and transfer of metal pollutants; enzymic aspects of the xenobiotic metabolizing system in the mussel; transport and toxicity of metal pollutants to marine organisms; periodicity and causes of irregular plankton blooms in the Northern Adriatic; testing the reference method for the analysis of DDTs and PCBs in marine organisms (MAP Technical Reports Series, No. 52, pp.86).

UNEP/WHO:

Epidemiological studies related to environmental quality criteria for bathing waters, shellfish growing waters and edible marine organisms (Activity D). (English only). Final report on an epidemiological study on bathers from selected beaches in Malaga, Spain, 1988-1989. The preliminary data showed that the risk of enteric symptomatology was higher among swimmers than among non-swimmers for the most polluted beach. There was a significant excess in the rates of dermatitis and respiratory symptoms for the 0-4 year age group among swimmers relative to non-swim-

AN INTERNATIONAL COURT FOR ENVIRONMENTAL PROTECTION IN THE MEDITERRANEAN

Experts, mainly in the field of law, acting on their own behalf from several Mediterranean countries, have set up on 8 December 1991 in Rome an International Court for the protection of the environment in the Mediterranean. After a two-day meeting, the Court adopted its Rules of Procedure and elected its Bureau (Honorary President: Professor Pino Grimaldi, President: Dr. Mario Gutierrez, Vice President: Mr. Vito Scalia, Secretary General: Mary Ellen Sikabonyi).

On the Executive Committee sit the members of the Bureau and 4 experts from Greece, Yugoslavia, Turkey and Egypt. A "wise men" Committee was also set up comprising experts from France, Italy and Spain. The Court will issue decisions and consultative opinions (of moral value) concerning the protection of the environment in the Mediterranean. The Rome meeting was sponsored by the Lions Club Association.

The meeting approved the Rules of Procedure of the Court. It will be a useful instrument - which did not exist up to now - to support efforts for the protection of the marine environment, public health and the well-being of coastal populations. Matters will be brought to the Court by physical persons, organizations and States and its decisions will take the form of judgements, arbitral decisions and declarations. It is an independent, non-profit, non-governmental organization, with headquarters in Rome, Italy. In April 1992, it will hold its first plenary assembly, open to the public, where a declaration of intent will be presented and where the court will announce the first cases that it will examine. This Court has no precedent and it will be interesting to follow developments. Even though its decisions and opinions will only have moral value, they may, through the media and the response of the public, have an impact on environmental disputes and may also constitute legal precedent. The Barcelona Convention stipulates that in case of dispute between two parties, an arbitral tribunal will be set up "unless the Parties decide otherwise". □

mers of all ages, but this excess was not associated with the bacterial densities in seawater. No statistically significant relationship was found between the incidence of swimming-associated enteric symptom rates and faecal indicators. (MAP Technical Reports Series, No. 53, pp. 127).

UNEP/WHO:

Development and testing of sampling and analytical techniques for monitoring of marine pollutants (Activity A). Final Reports on Selected Microbiological Projects. 6 Studies in English, introduction in English/French. Topics discussed: detection of Hepatitis A virus in sewage, seawater and shellfish; research on enteric viruses in aquatic environments; determination of the most suitable medium for enumeration of faecal streptococci in seawater; comparison of methods for enumeration of faecal streptococci in seawater. (MAP Technical Reports Series, No. 54, pp. 83).

UNEP:

Environmental impact assessment: the marina in Paphos. Environmental impact assessment: sea outfall for the Larnaca sewerage system. These two documents, in English only, are case studies carried out in Cyprus. They include: the analysis of the study, the description of the procedures used in the environmental impact assessment (which is the part prepared by RAC/PAP, Split), the guidance for the preparation of the EIA for the site and the EIA document along with references, figures and tables. Paphos, a tourist resort on the west coast of Cyprus, in the old harbour of which fishing craft and yachts moor needs a marina to cover the needs of extensive tourist development in recent years. Larnaca, also a tourist resort does not have at this time a main sewerage system and urban wastes are emptied into the ground. Occasional discharges and leakage of wastes into the sea have brought about an increase in bacterial concentrations in bathing waters. The setting-up of a sewerage system and a treatment plant for wastes will improve the situation. The documents were drafted with the support of OCA/PAC UNEP, Nairobi, in

the framework of legal agreements concluded with The Regional Seas Programme. (UNEP Regional Seas Reports and Studies, Nos. 130 and 131, respectively).

MEETINGS AND WORKSHOPS

FAO/UNEP/IOC Workshop on the biological effects of pollutants on marine organisms, Malta, 10-14 September 1991.

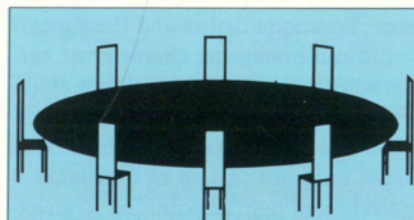
This workshop was convened jointly by FAO, UNEP and IOC and by the Euro-Mediterranean Centre on Marine Contamination Hazards of the Council of Europe in the framework of the MED POL monitoring and research programme in the Mediterranean. It took place in Valletta, Malta at the Foundation for International Studies directed by S. Busuttil (who has now become the new MAP Co-ordinator). It was attended by 50 participants from 10 Mediterranean countries and from Bulgaria, Canada, Rumania and the United Kingdom. 21 papers were presented on the biological responses of various test species to marine contaminants.

During the ensuing discussion, participants examined the applicability of the techniques in field studies on a routine basis and their significance and interpretation vis-à-vis marine pollution risk assessment. The proceedings of the Workshop and the papers presented will be published in the MAP Technical Reports Series.

MR. MOHAMED SAIED, APPOINTED DIRECTOR OF RAC/SPA TUNIS

Since the 1st August 1991, the Specially Protected Areas Centre has a full time director. He is Mr. Mohamed Saied, 45 with a Doctorate from the University of Toulouse, France, a specialist in water chemistry, purification and treatment, environment and envi-

ronmental legislation. Since February 1990, Mr. Saied has been chief engineer, head of the Section on Environment and Research of the Office National de l' Assainissement of Tunisia.



THE MAP CALENDAR OF MEETINGS

Meeting of the Bureau of the Contracting Parties	25-26 Feb. Cairo, Egypt
Consultation on pilot monitoring project on anionic detergents	27-29 Feb. Athens, Greece
Second meeting of the Task Team on implications of climatic changes on the Syrian coast	March Damascus
Consultation meeting on guidelines on data quality assurance	Mar/Apr. Monaco
Training course at MEDU	Athens
Meeting of Arab Experts on Methodology of rehabilitation of historic settlements	26-29 Apr. Tripoli
Meeting of MED POL Co-ordinators	6-9 May Athens

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WHY EGYPT?

This issue of MEDWAVES is the first special issue on a Mediterranean country and its environmental problems. If this effort finds a positive response, it could be repeated for other coastal states. "Why Egypt?" one might ask. Why else but for some very important reasons having to do with the weight that this country carries in the current development of the Mediterranean Basin. Obviously **cultural weight**: it is hardly necessary to mention it since it is part of our common heritage and reflects remarkably well the 5,000-year history of the region. However, if Egypt concerns us today, it is firstly because of its **demographic weight**. It is the most populated country of the Southern part of the Mediterranean, in fourth place in the region after Italy, France and Turkey, and in the year 2000 (in 8 short years!) it will vie for first place with Turkey with a population between 63 and 65 million. Also, because of its **strategic and diplomatic weight**. Egypt is the crossroads between East and West, Maghreb and Mashrek, the Mediterranean and the Red Sea (through the Suez Canal), Arab Africa and Black Africa (through the Nile); it is therefore an essential element of balance in this part of the world. The election of Mr. Butros Ghali as Secretary General of the United Nations illustrates this fact, just as the same thing is reflected at a regional level, by the re-election of Mr. Ebeid to the presidency of the Bureau of the Mediterranean Action Plan. Finally, because of its **environmental weight**. Since Herodotus' time (5th Century B.C.) who called her "gift of the Nile", Egypt has always been a rare example anywhere, of a country that has built its life, prosperity and civilization on the exclusive dependence on a fluvial ecosystem, to the point where it is sometimes referred to as

"an hydraulic nation". However, the "gift of the Nile" faces today extremely serious environmental problems. For that too, Egypt can be seen as an example, to the extent that its problems will or will not be solved and, depending on the solutions given to them, the lessons learned which might help other developing countries.

To each of the issues in this dossier - High Dam and water resources, climatic changes and delta, pesticides, pollution and waste management in Cairo, environmental protection planning - corresponds an enormous challenge for the resources of a country that is overpopulated, with extremely large urban areas, a country that adds one million people to its population every 9 months and which, because of this, is forced to import ever greater quantities of wheat and foodstuffs. The Egyptian Government is well aware of these challenges and of both the complexity and the enormity of the risk for the people of Egypt. Several pessimistic reports on Egypt and its environment in the short and medium term exist. However, in the long term, new factors appear which might reverse the trend. For instance a slowing down of the demographic increase at the level of the new urbanized classes. Moreover, if human resources in Egypt seem to be a handicap today, they could in the next century be turned into an asset, if one thinks of a projected regional "big market" where the neighbouring countries will need qualified manpower. 50% of the Arab students of the Near East and the Middle East studies in its Universities, 5 million Egyptians hold University Degrees and are for the most part underutilized. Egypt's workers and farmers by the millions have abandoned the country where their parents and grandparents have lived for millen-

nia, to go to Saudi Arabia, Kuwait and Iraq, and help build large infrastructure projects and till the earth in places like the Euphrates Valley. Before the Gulf War, emigrants sent home 3 billion dollars, or one quarter of the surplus of the Egyptian balance of payments. Even though many of those emigrants have returned, mostly because the Iran-Iraq War and the Gulf War have ended, one might expect this trend to pick up again as tensions and conflicts calm down in the area. Finally, there will be new perspectives for Egypt from new technologies. Egypt has, under its deserts which constitute 90% of its land, enormous still unexploited deposits of natural gas (on both sides of the Red Sea) and of fossil water, in addition to the known reserves of oil. As to solar energy? Egypt, because of its climate, is bound to profit enormously.

In this dossier, we attempted to avoid two pitfalls: on the one hand, environmental alarmism which generates fatalism (why try if nothing can be done?) and on the other the complacent listing of imaginary victories in combating pollution. Egypt must in the next few decades go through a critical phase in environmental protection. The key word, and we use it often in this dossier, is "cooperation". At international level, cooperation with the World Bank should help in the most critical situations. At regional level, the active participation of Egyptian officials and experts in the Mediterranean Action Plan has proved, for the last 15 years, how highly they prize this type of cooperation. This issue of MEDWAVES opens on the Contracting Parties Meeting held at Cairo between 8 and 11 October last. So the dossier links this important biennial MAP manifestation with the country that hosted it.





MR ATEF EBEID, EGYPTIAN MINISTER IN CHARGE OF THE ENVIRONMENT AND BUREAU PRESIDENT: «THE MASTER PLAN WILL BE OUR COUNTRY'S RESPONSE TO ENVIRONMENTAL CHALLENGES...»

MEDWAVES: *Mr. Minister, you are starting your second term of office as President of the Bureau of the Contracting Parties to the Barcelona Convention. To begin this interview on a personal note, could you please tell us about the experience gained and the lessons learned in your first term of office? Have your views on environmental problems and cooperation in the Mediterranean been affected? And if so, have you become more optimistic or more pessimistic?*

A. EBEID: Even though I am a Minister and in charge of several areas in addition to the Environment in a country that is the most populated in Africa, the Presidency of the Bureau has given me the opportunity to get a much broader conception, i.e. to leave the Egyptian framework per se and place myself within the "global Mediterranean perspective". That can upset certain reflexes conditioned by thinking in terms of one country. And what comes out of it is an idea that one most certainly already has in mind, but which becomes a lot more forceful : the crucial importance of regional cooperation on everything that concerns the environment. In the last two years I realized, through my contacts with our Mediterranean partners, how the national perspective in itself cannot provide a solution to our problems. In matters of pollution, all share in responsibility and negligence. Therefore, all must share in

Mr. A. Ebeid, unanimously re-elected President of the Bureau of the Contracting Parties for the new biennium, answered our questions on the lessons learned during his first term of office and the perspectives of environmental protection in Egypt.

the assessment, realization and decision-taking processes. This regional perspective seems to me fundamental for efficacy of action. Now as to whether I am pessimistic or optimistic, I believe that one shouldn't see things in such an absolute manner. The Mediterranean environment is like the glass that, depending on one's outlook, is either half full or half empty. I fully agree with Dr. Tolba : It is no good to establish plans and standards if they are not followed by actions. However, in a situation that is not irreversible, and fortunately this is the case of the deterioration of the Mediterranean environment, as the data show, one should be optimistic because then you are moved to do something. You are forced to do something.

MEDWAVES: *This is a special MEDWAVES issue on Egypt. Could you outline the priorities of the Egyptian*

Government as concerns the environment?

A. EBEID: The serious deterioration of the environment in our country very early on made the Government aware of the problem and very concerned about it. It realized the extent of environmental damage due to abuse, polluting practices and negligence which would affect both public health and development. First we had to carry out a general assessment of pollution and collect sufficient data and information on it. It was clearly shown that our country, like a lot of other countries, is faced with many problems : air, water and noise pollution, lack of appropriate solid and liquid waste management. We had to meet several challenges : preservation of agricultural land, a new conception of landscape protection, enforcement of strict rules in this area, and preparation of an integrated coastal areas management plan. Egyptian policy was based on the absolute conviction that problems should be tackled at the source, that development should respect environmental needs and that the appropriate legislative framework should be set up. In response to the recommendations of the Consultative Group for Egypt which met in Paris in July 1991 to prepare a Master Plan of Environment to be presented to the World Bank and other International and Governmental Agencies, ten expert groups were set up to pre-



pare studies and formulate proposals on the main objectives of the Master Plan. This is then the response of our country to environmental challenges. In terms of priorities, it is rather a time-frame issue than a question of principle. There are no priorities in environmental protection since there is no main enemy : everything is interconnected, linked together, and calls for an integrated approach. The Egyptian Master Plan will enable us to deal with the various components at the same time, soil and water resources management, pollution control, demographic boom, wastes, etc. The Plan will be presented in March/April 1992 at an international conference to be convened in Cairo in close cooperation with the World Bank.

MEDWAVES: *Much is being said about North-South dialogue and cooperation. As an Egyptian Minister, do you have the impression that for the Northern Mediterranean countries this cooperation is only talk or is there real progress?*

A. EBEID: Your question concerns a pivotal point on regional and international cooperation, since environmental protection cannot progress with declarations of intent and goodwill alone. It involves know-how, financing, technology exchanges. It comes up against powerful interests. Coordination, assistance and profitability must all be considered careful-



ly. What is the situation today? We have entered, I believe, a more practical phase. For instance, the Nicosia Charter which was adopted in June 1990 as a result of discussions between the EEC and 12 Coastal Mediterranean States, is not a shopping list. It includes precise commitments on treatment stations, control of discharges, etc., and is based on the solidarity among countries and the assistance of financial institutions, such as the World Bank. You see, something is moving, by way of a political response to the technological and economic imbalance between the North and the South. On this too, I am optimistic.

MEDWAVES: *Environmental protection has a financial and a political cost. Is this cost bearable for a developing country like Egypt?*

A. EBEID: Indeed, it is an enormous cost, which has to be paid. Gone is the time when development for its own sake seemed the solution to everything, everywhere. "Development" is now preceded by "sustainable", because we have learned that there are types of development that self-destruct. Today we are in a position to understand sustainable development thanks to concepts like impact assessment. However, this enormous cost that must be borne can be lessened for the States in financial difficulties within this cooperation framework that I mentioned a minute ago, with the World Bank for instance. The Rio Conference might be the forum where collective, international and innovative solutions might be found, solutions to the problem of financing environmental policies, proposals about what means and resources to put at the disposal of the Southern countries to enable them to formulate freely original development plans and acquire scientific and technological know-how. If we think about the world we are going to leave to the future generations, we will conclude that no price is too high. The question is then not whether to pay, but how.





A COUNTRY'S PROFILE

Official title:

Arab Republic of Egypt.

Political institutions:

Head of State (President of the Republic) elected by referendum for 6 years on proposal of the People's Assembly. Executive powers lie with the President of the Republic and the Government. Legislative powers lie with the People's Assembly elected by direct, universal vote by the people. President (since 1981): Hosni Mubarak.

Geography

- Total area: 1,101,449km²
- 2 sea fronts: Mediterranean and the Red Sea
- Geographic areas: the Nile (1,200km in Egypt, 6,600km total), the Delta (alluvial and fertile), the desert (90% of the total land mass of the country).

Demographic data:

- Capital: Cairo, 13 million, the largest city in Africa and in the Arab World, its cultural and intellectual centre (Al Azhar University).
- 2nd city: Alexandria, 4 million, west of the Delta.
- Population: 54 million, the most populous Arab State.
- Density: 52.3 people/km². Population concentrated on 3.5% of the land in the Nile River Valley and Delta, where density goes up to 1,200 people/km², the highest in the world. Urban population 45%. Demographic increase: 2.7% (1980-90).

Economy:

- GNP per capita: \$ 660
- GDP per capita: \$1,219
- External debt: \$50 billion
- Growth rate: 1.6% (1991)
- Inflation rate: 28.5% (1991)
- Trade balance: \$-7 billion
- Main trade partners: EEC (38% exports, 41.1% imports), Eastern Europe 12.3%, 21.4%), USA (13%, 0.9%), Japan (5%, 3%), other Arab States (3.8%, 5%).
- Main industrial sectors: Agribusiness, chemicals, cement, textiles, shipyards 36% of GDP, 8% of active population.



Blue Plan projections on population

	Rate of increase	1985	2000	2025
Scenario T1 (trend, reference)	2,3	46.900.000	65.700.000	90.400.000
Scenario T2 (trend, worst case)	2,1	46.100.000	65.700.000	93.300.000
Scenario T3 (trend, moderate)	2,7	46.900.000	63.900.000	90.400.000
Scenario A1 (alternative, reference)	2,8	46.800.000	62.200.000	85.000.000

- Agriculture: Maize, wheat, cotton, fruits and vegetables have become a high priority objective. The greatest agricultural density in the world. Not self-sufficient in food. Increase in food dependency: 60% (80% for cereals). 18.5% of GDP, 35% of active population.
- Oil: 44.2 Mt (1990), 1.4% of world production.
- Tourism: 45.5% of GDP. 1 million visitors in 1980; 2.6 million in 1990 (despite cancellations due to Gulf War).

- Foreign currency: Emigrants' transfers: \$3 billion (before Gulf War); Tourism: \$2 billion; Passage of Suez Canal rights \$1.5 billion; export of oil products \$2 billion.

Religions:

Sunni Moslems, 90%, Christian Copts 10%. □



CLIMATE CHANGE AND DEMOGRAPHIC BOOM: AN EXPLOSIVE COCKTAIL FOR THE NILE DELTA

"Most of the deltaic lowlands of the Mediterranean Sea are experiencing serious environmental problems because of agricultural, industrial, urban and tourist developments over the last two decades. Problems range from water pollution and salinization to land subsidence, shoreline erosion and restriction and deterioration of wildlife habitats. These problems will be increased by adverse socio-economic conditions, the effects of which will be superimposed upon those of climatic change".

This is one of the findings of the Mediterranean Task Team on climate change presented to the joint meeting in Singapore by its co-ordinator, Mr. L. Jeftic in November 1990. This finding is particularly pertinent to the Nile Delta which, for this precise reason, was the object of a case study (along with the Deltas of the Ebro and Po rivers) presented in 1988 to the Split meeting where all the UNEP Task Teams for regional seas were discussed their findings. This same study was submitted two months later for examination at a national seminar organized in Cairo by the Egyptian Agency of Environmental Affairs and the MAP Co-ordinating Unit. In this article we will give the main conclusions of this study. Let us remember that, in order to evaluate the implications of climatic change, we follow the basic assumptions formulated at the Villach 1985 Conference: temperature rise by 1.5°C and sea level rise of 20cm by the year 2025; the figures would be 1.5-4.5°C and 20-140cm respectively by the end of the 21st century. It was agreed at Villach that these projections would be revised if new data came to light.

50% of the population on 2.3% of the land surface

The figures speak for themselves. The Nile Delta is 2.3% of the total ar-

ea of Egypt, but it represents 46% of the area under cultivation and it is home to approximately 50% of the population (i.e. over 25 million out of a total 54 million Egyptians) and 40% of the industrial activities covering the primary needs of the country: agribusiness, textiles and clothing, shoes, chemical fertilizers, cement, metallurgical and mechanical units. Concerning the lower part of the Delta, which is the most vulnerable because of the lowlands and the proximity to the sea, it contains 20% of the people and urban centres important for communications, industry and summer tourism, Alexandria and Port Said. This part of the Delta brings in most of the agricultural and fisheries production (the coast and the lagoons represent 60% of the fish and seafood catches). The many lagoons in the Delta represent one fourth of all the Mediterranean wetlands and, in addition to their fishing interest, they are unique habitats for wildlife (flora and fauna), vital stops for birds migrating from central Asia as well as wintering centres for birds from the vast area extending between Europe and the Himalayas.

Under these conditions, one doesn't need topographical simulations on computer to realize the enormous impact of a possible sea level rise in the area. A long stretch of the coast between Alexandria and Port Said is less than 1m above sea level; many areas are below sea level. The area which is less than 2m above sea level extends to between 30 and 60km in width covering 4,800 km² in total. In addition to Port Said and Alexandria other cities in the area are Kafr el Dauwar, Rosetta, Damietta, Matariya, Manzala and Qantara.

For many years, but especially since the Aswan High Dam was built in 1964, the Delta coastline has suffered erosion especially in Rosetta, Damietta, Burullus. Because the river no longer brings down silt, coast ero-

sion will most likely be a permanent phenomenon. Up to now, it has affected only the summer resorts and local infrastructure. However, the impact would be a lot more serious if a sea level rise rapidly threatened fishing in the lagoons, irrigated crops and newly established industrial sites near the coast. The negative impact of the lack of silt brought down by the river has been felt in the whole Eastern Mediterranean, including the Coast of Cyprus and that of Israel.

Excessive constraints

In any valid assessment of the impact of projected climatic changes, one should take into consideration not just the present situation but also the development in the next decades. By the year 2000, it is thought that the people living in the Delta areas less than 3m above sea level will be at least 12.5 million from 10 million today. All these people will have to be fed, housed, employed and they will continue to increase. Let's cite here another finding of the Mediterranean Task Team which rings the alarm for Egypt: *"The future impacts on Mediterranean society of non-climatic factors (e.g. population increases, present development plans) may far exceed the direct impacts of climate change. Non-climate factors will cause continuous increases in society's vulnerability to climatic stress, particularly in the South"*. In other words, demographic boom and warming will be an "explosive cocktail". What makes the Nile Delta more vulnerable than other deltas (like those of the Po and Ebro rivers) is that because of the concentration of the human and other resources of the country in a narrow region surrounded by desert on all sides, this Delta is of national importance. Space limitations are tremendous. The extension of arable lands has been obtained with difficulty up to now by reclaiming mar-



ginal lagoon land. If a new extension were attempted, the very productive fishing activities in the lagoons would be compromised and crops would come up against the salinity of the soil. Along with urbanization, industrial and commercial activities will continue to increase from Alexandria to Aboukir and at Port Said as well. Thus, one may expect the development of new summer resorts, since some areas are already saturated, like the very crowded and polluted beaches near Alexandria.

Because rainfall is limited, the Delta region depends entirely on the water of the Nile for its urban, industrial and agricultural needs. There are, to be sure, unused and under-used sources like underground water, wastewater and the winter surplus of runoff water when irrigation needs are lower. However, there are technical difficulties (like the high salinity of irrigation water and underground water in the Northern section of the Delta).

What to expect

What we have said above shows quite clearly that, even without the anticipated rises in temperature and seawater level, the situation in the Delta would anyway be very difficult in the next decades. Events ensuing from atmospheric warming will make the picture darker and increase the cost of remedial measures to be taken.

A minimal sea level rise of 10-20cm would accelerate coastal erosion; it would enhance wave attack damage on harbour installations, on the Nile mouth promontories and on the shoreline stretches that are subject to periodic flooding by storm surges.

A sea level rise of 30 to 50cm would impose more extensive protection measures. A plan of protection would have to be considered as soon as possible and practical measures taken during the next 10 to 20 years, in order to avoid major disruptions along the Delta coastline. It is also possible that lagoonal barriers might be overcome by the sea. Even though

coastal retreat will continue, engineering measures of protection would have to be carefully evaluated for their negative as well as positive effects. A large-scale flooding of the lowlands is not to be expected. In theory, a sea level rise (or relative rise, to include the effects of land subsidence) of 1m could submerge the lands to within 30km from the coast or more, affecting 15% of Egypt's arable land, 12-15 million people and 10-15% of the GNP. However, the cultivated lands are already bordered by dykes and more protection works are likely to be constructed along with new reclamation or water preservation schemes. Other examples (The Netherlands) show that man's ingenuity can overcome the problem. In fact the impact of sea level rise will be mainly financial, which would mean new investments to be carried out by the Egyptian State which is already waging a tough economic battle on many other fronts.

Higher average temperatures will increase evaporation rates and the salinity of waters and soils, with negative impacts on groundwater and on reclaimed agricultural land. But in general, temperature rise could favour agriculture (maybe with some shift in crops and the use of agrobiotechnology which will be developed in the coming decades).

To anticipate, even if uncertainties exist

The conclusion to be drawn and of which the Egyptian authorities are fully aware is that the development of the coastal area and of the interior of the Delta must be studied carefully with special focus on the sites that can be protected most effectively and most economically without creating problems which would aggravate those that will arise from climatic change. Egypt has an advantage in that the State has control over planning and land development; thus it is easier to avoid errors made in other places, like for instance to "hold tight" to the coastline by protecting it, which might lead to greater sacrifices later. Since, despite uncertain-

ties concerning the modalities, the extent and the timeframe, a temperature rise seems inevitable, the most cautious approach in the near future would be to follow developments closely and to collect and analyze exhaustive data in order to proceed to a valid assessment. It was an encouraging sign that in 1988, when the case study on the Delta was presented in Cairo, many Egyptian experts and government officials were present and took part in the discussion. In Egypt, as in any other country to be affected by climatic change, the politicians shouldn't just receive passively the scientific message, but should help shape it, formulate it and if need be revise it after careful consideration. There are obviously certain aspects of this study, like almost any study, that might be controversial. The Mediterranean Task Team noted in Singapore that "in general terms, meetings and studies have not had any impact on national policies". And it concluded that the "final users" of these studies should actively participate in their elaboration.

A "wait and see" attitude might lead to an irreversible and tragic situation and could not be justified by scientific controversies on climatic change scenarios. The Second World Climate Conference Statement adopted on November 7, 1990 by the representatives of 116 countries provides *inter alia* that "confronted with the dangers looming over the planet, humanity must not use the remaining uncertainties for deferring societal responses to these risks, especially since many of the actions that would reduce risk are also desirable on other grounds". □



THE ASWAN HIGH DAM: A MONUMENTAL PROJECT WITH CONTROVERSIAL CONSEQUENCES

In the 50s when the new Aswan High Dam was constructed the whole context of the period was euphoric. We must remember that those were the "construction boom" years, when most political leaders world-wide believed that development at any cost was the solution to misery, a hostile environment and an unfavourable distribution of world resources. The Aswan project had three objectives: to regularize completely the course of the Nile below the dam, to irrigate new lands conquered from the desert and secure the electricity necessary for the large-scale human settlements that were being developed in the Nile Valley and Delta. The dream comes true thanks to the financial and technical assistance of the USSR and the work takes 10 years to complete. The Dam, the fourth largest in the world, is closed in 1964 and officially inaugurated in January 1971. It gave birth to an immense artificial lake - Lake Nasser - two thirds of which are in Egypt and one third in the Sudan, and there is an agreement between the two States governing the distribution of water. The Dam stores 160 to 185 billion m³ of water, i.e., five times the annual flow of the river, one sixth of which is lost to evaporation. 30 years after the Dam's completion, we know that it has not fulfilled all the dreams invested in it. The objectives have been met, but the numbers projected have not been reached. To this colossal intervention by man and his technology, the ecosystem has responded by "aberrant" effects which have gradually appeared over the years.

The Nile deprived of its silt

Before the High Dam was constructed, there were annual floods, between August and September with water rising 6m which was lowered to 4m after several projects. This cycle of floods has marked every aspect of Egyptian life

over the past several millennia. Up until the 19th century the floodwaters were collected in ponds which furnished the crops with the necessary amount of water for 3 to 4 months after each flood. Then, dams were built in order to use the water all year long to make it possible to cultivate 2, 3 or even 4 crops and plant new crops like maize and cotton. In Aswan, a dam was built in 1902 and given extra height to 44m in 1921 and 1933. (The current High Dam is 111m high). After the new Dam was put into operation, no more floods occur downstream, but irrigation is possible throughout the year. However, over the years, the environmental impact has given rise to problems which, if not totally ignored by the initiators of the project, had not been anticipated in their intensity. Here are some of them:

1) Flood elimination meant that the ponds that were previously covered with silt that the river was bringing down to the tune of 60 to 180 million tons a year were deprived of it. It is returned upstream from the Dam in the reservoir and Lake Nasser and siltation occurs. As a consequence the Egyptian farmers have had to use chemical fertilizers: 2 million tons are needed today, versus 700,000 in 1957 with considerable loss of hard currency for the Egyptian State. The silt brought with it nutritive elements and fertilized the coastal waters as well, making them rich in plankton and thus particularly rich in fish. Soon after the High Dam was completed in 1964, fish catches decreased spectacularly: 17,000 tons in 1969 versus 90,500 in 1962! Sardine catches were the most affected; catches remained very low until 1979 when some compensatory phenomena (organic matter brought by pollution, upwellings) increased them considerably.

2) The elimination of floods which "washed" the soil while fertilizing it, also brought about salinization. In 1973 it

was estimated that about one third of the irrigated land had already, or was in the process of being salinized; this percentage is closer to 50% today, even though one finds different figures in literature. Salinization has made drainage necessary and in some cases land cultivation had to stop.

3) The Nile flows faster and digs its bed deeper (60cm between 1964 and 1968; from then onwards 1.7cm per year).

4) The silt brought down by the river maintained the surface of the Delta. Of the 150 million tons of silt carried down each year, 20% was deposited in the Delta; it was mostly fine sand which preserved the coast near the various mouths. Today the coast recedes very unevenly depending on the site. At Rosetta it recedes by up to 80m per year. For the whole Delta outline the average is 30m.

5) Irrigation canals are now permanently full which has meant a tremendous upsurge of parasitic diseases, the vectors of which reside in the stagnant waters. This is especially true for bilharziasis which is endemic and a fundamental public health problem.

6) The irrigation of new lands in the desert has meant in several areas a complete sterilization of the soil due to salt deposits which had not been identified. The hope was that 1 million hectares would be recovered for agriculture through irrigation. Approximately 300,000 were initially recovered, of which 160,000 were later abandoned due to salt infiltration.

Needs doubled in 20 years

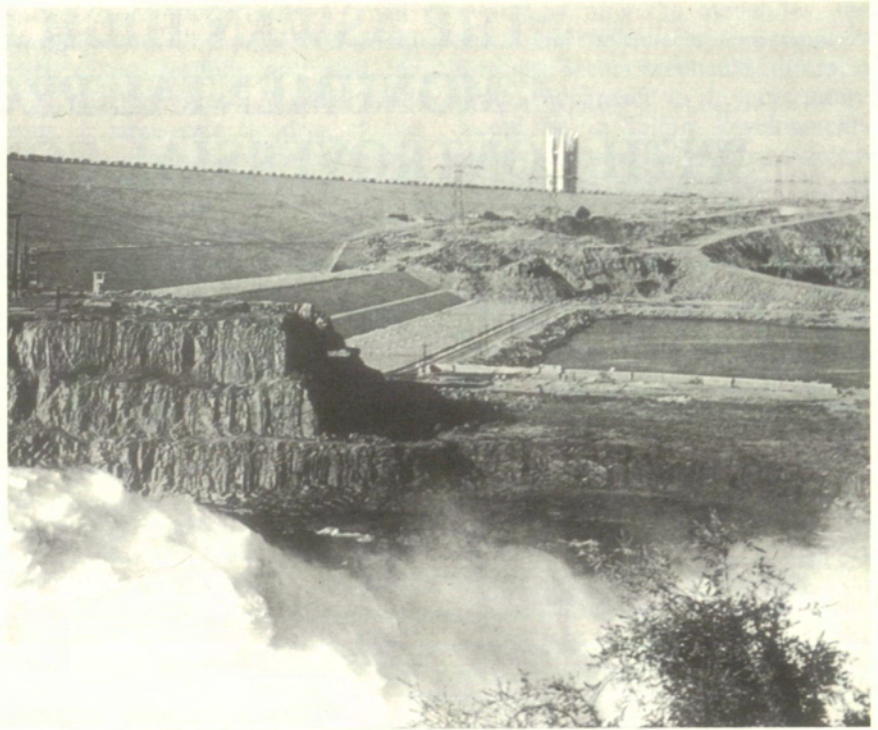
However, these unexpected consequences are but limiting factors; one should not forget the demographic boom and the extremely fast urbanization which have doubled the needs in water and energy in 20 years; the Aswan High Dam has been superseded by



these developments. Egypt consumes today 30 billion kWh/year and only 10 billion of these are of hydraulic origin. 4,500 of these come from the High Dam and because the water distribution system is not completed yet, the yield has not reached the highest point. Concerning the agricultural needs for water, they follow the needs in food; Egypt today has a foodstuff deficit which is increasing and has reached almost 80% for cereals.

What is being done

These facts, even though disappointing, should not give rise to a fatalistic approach. The High Dam has been an integral part of Egyptian economy and ecology, with all its advantages and disadvantages. Among the former, one shouldn't forget the most important which is that the country has been able to avoid the disastrous repercussions of a lengthy drought, such as that of the 80s, thanks to the existence of Lake Nasser with its providential water reserves (even though their level has fallen considerably). This for the future is an assurance against a recurrent curse that Egypt has known throughout its long history. Moreover technology offers solutions to some of the negative impact on the environment. Several projects are being studied to allow an increase in the river flow through changes in the course of the river in the Sudan and other neighbouring countries. The Egyptian Government is also aware that losses of water can be lessened considerably and has put together a Water Master Plan which focuses on better utilization, lower quantities of water being lost uselessly in the Mediterranean in the winter (when there is less need for irrigation), recycling of urban and industrial wastewater, replacement of often archaic irrigation methods by new technologies (dripping techniques, combined watering techniques), improvement of agricultural practices, the choice of suitable crops (needing less water and salt resistant), recourse to ground water and fossil water after an in-depth environmental impact study, desalinization of seawater, already implemented for the drinking water of the cities far from



The high retention wall of the High Dam which has a length of 5 km has formed a reservoir (Lake Nasser) 500km long and 10 to 30km wide.

the Nile (like Marsa Matrouh), etc. Finally, concerning energy, a regional project is being studied: it will exploit the hydro-electrical resources of Inga in Zaire - which are considerable - by connecting them with the Aswan network. Canadian experts are working on this project sponsored by the African Development Bank.

Regional Co-operation

In conclusion, and regardless of the alternative solutions that will be implemented, the dependence on the Nile will remain a fact for modern Egypt, as it has been a fact for the country for the past several millennia. The river must be rationally organized, controlled and exploited by the coastal states and those through which the Blue Nile and the White Nile flow. The Nile, which springs from the heart of Black Africa, runs for 6,660 km before it reaches the Mediterranean; it is the most important way to penetrate into the continent. The benefits to be drawn from the river imply a delicate choice among the vari-

ous uses for its waters and their distribution (agriculture, production of electricity, urban and industrial needs, river navigation); the various priorities and the losses through evapotranspiration should also be taken into account. Multilateral agreements are also necessary - the process has already begun with the Sudan - in order that all States concerned share equally in the resources. Otherwise a "water war" may ensue which would have catastrophic consequences for all the peoples involved. In this connection, the solutions for a better exploitation of the resources of the Nile go beyond the purely African framework and encompass all the Eastern Mediterranean and the Middle East where the scarcity of water is always a threat just like in Africa. (See in that connection the Euphrates, the Jordan and the Tiger rivers). One thing is for sure at this point: no one country can solve the problem by itself; the existing solutions, through the help of technology, are only possible in the framework of the largest possible regional co-operation. □



ABUSIVE USE OF PESTICIDES

Pesticides and their impact on the environment continue to be a serious problem in Egypt where farmers use them intensively in order to protect their crops - especially cotton - against pests. Cotton is a revealing example. Given that it is the major export crop and the fifth source of hard currency for the country (despite a production drop in the 80s from 500,000t in 1981 to 280,000 in 1989), it is obvious that plant protection is an important economic factor.

Among pesticides, organophosphorus compounds are included in the Black List of the Land-Based Sources Protocol of the Barcelona Convention. On the basis of the assessment of pollution by component, submitted and endorsed by the Meeting of the Contracting Parties at Cairo, *"as far as the aquatic ecosystems are concerned it is evident that fresh water ecosystems are exposed to a bigger danger than marine ecosystems. However, in view of the uncertainties due to reliance on single species toxicity tests, lack of data on vulnerable biotopes and lack of data on behaviour of organophosphorus compounds in the marine environment, it is probable that potential impacts on marine ecosystems have been underestimated and therefore the principle of precautionary approach could be followed"*.

According to a Greenpeace International report submitted to the Joint Meeting of the Scientific and Technical Committee and the Socio-Economic Committee (Athens, May 1991), where Egypt was the object of one of the 4 Mediterranean case studies, it is calculated that over the past 47 years, 690,450t of formulated pesticides have been injected into the environment. Currently, annual consumption of pesticides is around 30,000t at a cost of \$200 million. Approximately 1/4 of the total concerns organophosphorus compounds, and the effort to control their use has been limited.

The studies carried out in Egypt on organophosphorus pesticides during the spraying period show high rates at the stage of applying them; that means that all solid elements in the air of the areas under cultivation are contaminated for the whole year. During the same peri-

od, the Nile receives a considerable pollution load; 6 to 53t of organophosphorus compounds may be transported by the river to the Mediterranean depending on conditions (run-off etc.); there they give rise to eutrophication phenomena.

Organochlorinated pesticides produce in mammals (and man) a neuropathy through excessive cholinergic stimulation through poisoning. Several cases of wildlife poisoning have been reported in the past. In 1986, WHO issued a list with permissible daily inputs for 47 organophosphorus pesticides; the toxicity of the various products varies. In Egypt those affected the most are farmers using the sprays and workers engaged in formulation and packaging of pesticides; their number reaches approximately 1,260,000. Many acute poisoning cases have been reported in the past. In 1971, water buffalo were killed by neuropathy in the city of Quatour in the Delta after aerial spraying of the OP leptophos. In 1975 65 farmers died as a result of poisoning by the same product which led the Egyptian Ministry of Agriculture to prohibit its use.

The abusive use of organophosphorus compounds can be partly explained by the fact that they are subsidized to 80%. Because their price is thus kept artificially low, farmers tend to use them extensively, especially since they are not informed about side effects or acceptable doses. Moreover, certain developed countries - or rather companies based in them - continue to export products banned by their national legislation, to the detriment of the environment and public health of developing countries. Furthermore, pests develop resistance against products used, so farmers use new products, which explain why in Egypt 35 different organophosphorus pesticides have been used since 1975. The pest resistant species which in 1948 numbered 14 became 364 in 1976.

Given this disquieting state of affairs, the Egyptian authorities have started developing alternative strategies for plant protection. One solution consists in a pest control approach with biological pesticides (insect viruses) which are environmentally harmless.

However this not only requires investments but also large-scale awareness campaigns for farmers who for decades have used practices the result of which they can see right away.

According to the Greenpeace study, ecological methods currently being tested in certain areas of Egypt include the employment of insect pheromones for mass trapping and disruption of pest species, the application of baculovirus and the collection of egg masses by children. Different methods are effective against different pest species and the emphasis is on an integrated approach combined with preserving and building up natural predator populations. Where these alternative methods have been practiced in Egypt, the number of pesticide sprays has already been reduced by half. And the report on Egypt concludes thus: *"An important, positive side-effect of alternative methods is the survival of honey-bees which are badly affected by insecticides. Honey is an important export commodity in Egypt and the ability to allow honey-bees to forage in cotton lands is an added economic benefit of ecological pest control"*. Another strong motive for replacing the most noxious products with other acceptable products or by biological pest control methods is the law of the market itself: as importing countries set down regulations on pesticide residues which are monitored strictly, the exporting countries have an obvious interest in adapting to these new standards and changing their practices.

According to Egyptian statistics from the Environmental Affairs Agency (which have been included in MAP's assessment), the importation of organophosphorus pesticides has fallen from 2,604 tons in 1984 to 800 tons in 1989; to this we should add local production on the basis of imported active ingredients. This shows a favourable trend confirmed by researchers from other international organizations: for many years now, on the Egyptian market of pesticides, organophosphorus compounds are gradually being replaced by pyrethroid compounds. □



The Blue Plan Contribution

THE PROBLEM OF WASTES AND THE SEWERAGE SYSTEM IN CAIRO

Greater Cairo is composed of Cairo (east of the Nile), Giza (on the West Bank) and the adjoining areas north in Subra-el-Kheima, and south up to Hawamdieth. This is a total densely populated area of 400 km² and more than 11m. people, with an additional 1 1/2m. coming in and out every day.

Population density averages 30,000/km², but in certain central districts it reaches 100,000/km². As regards crowding, Cairo is exceeded only by Calcutta and Bangkok. There are 250,000 residential houses and 1.5m. family dwellings. The first fresh-water distribution station was established in 1865. Now there are 17 major water stations, producing 3m.³/day, 75 per cent of which comes from the Nile and 25 per cent from deep wells underground.

The first sewage system was established in 1911, and was handling 48,000 m³/day. There are now seven large sewage treatment stations collecting 2m.³/day, which is about 90 per cent of the total effluent load of the city. Thus, 200,000 m³ are absorbed underground, or left unpumped in the streets; and 30 per cent of the city area is not

yet connected to the public sewage system. The shortcomings of the sewage and treatment system became obvious by the early 1980s. A provisional rescue project was started to strengthen and renew the 175 pumping stations and clean the major pipes - 3,500 km long - of deposits which have accumulated over the years. A comprehensive sewage project was planned to meet requirements until the year 2000, when the population is estimated to reach 16.5m. On the east side a tunnel 5 m in diameter is to extend from the south to the north-east, with subsidiary feeding tunnels, to collect the sewage and then pump it into a large treatment plant before using the water to irrigate desert land.

A similar project on a smaller scale is planned for the West Bank. At present only 15 per cent of the waste water collected is treated fully, while 25 per cent is treated partially and 60 per cent is carried raw for 200 km by open canals to Lake Manzala and then to the sea.

Solid waste collected from Cairo is about 4,000 t/day from private houses, plus about 1,000 t from industry. It in-

cludes household garbage, refuse, building debris and other. It is collected mostly by hand, horse and donkey-carts, and heavy trucks.

There is an intricate system of door-to-door collection, then transport to a central area at the outskirts, where the main components are picked by hand and recycled, or used as feed for pigs in nearby farms. There is a very autocratic system of management, which generates high income for the top chiefs, and very little for the rest of the workers. Several attempts have been made to devise more humane systems of garbage collection, but they never worked as efficiently. Plastic bags are being distributed now at low cost to households to keep the garbage until the zabbal comes in the morning to take it.

(Extract from: *Futures for the Mediterranean Basin, The Blue Plan, Oxford University Press, 1989, p.312*).

♣ *Garbage collection by cart in Cairo*





An article in *El Ahram*

Air pollution in Cairo

TRAFFIC POLICEMEN VICTIMS OF EXHAUST FUMES

Cairo suffers serious air pollution due to factories, dust from the Mokattam hills and car traffic. One should add the type of fuel used for heating and cooking in Cairo homes. We have asked the authoritative Arab daily *El Ahram* for the following article which deals with a little known aspect of air pollution in Cairo.

"Air pollution is one of the most serious environmental problems that big cities face in both the developed and the developing countries. In Egypt, a series of studies has been carried out to assess atmospheric pollution especially in Cairo and the risks from exposure to this form of pollution. One of these alarming studies was conducted on traffic policemen in Cairo. It showed that these policemen have in their blood three times the concentration of toxic substances coming from exhaust fumes than is allowed internationally. This fact is due of course to their excessive exposure to fumes in the busy streets of

the Egyptian capital. A joint Egyptian-American study pointed out the serious heart and respiratory problems that this toxicity can engender. It also showed that lead concentration in the blood of the policemen was 50 micrograms per 100cm³, while the internationally accepted limit is 20 micrograms.

This study, carried out jointly by the Medical School of the University of Cincinnati and the Faculty of Medicine of Cairo University within the framework of a joint project (the American-Egyptian Universities Linkage Project) studied policemen who work every day on the street breathing exhaust fumes. It took two years to complete and cost US\$100,000. There were 250 policemen included in the study, divided into 4 groups depending on their years of service.

The results showed that at least 42% suffers from dry cough, upper respiratory tract inflammation (nose, throat, the larynx) and cornea irritation. In 50% of the policemen, respiratory problems were directly linked with the years of service and became worse if

the individual was a smoker. Electrocardiograms showed heart problems and coronary deficiencies due to carbon monoxide in the air.

According to this study, pollution in Cairo is worse than in other industrial cities throughout the world and it should be attributed to traffic congestion, especially by big, old vehicles which are frequently maintained poorly. The absorption of carbon monoxide by traffic policemen working at street level showed an average rate of around 4%, while for those sitting in the traffic towers in major intersections it came to 6%. This, according to the researchers is due to the fact that carbon monoxide is lighter than air and its concentration increases as one goes higher. The impact of toxic fumes is doubled in smokers and in heavy smokers it may cause lung cancer, emphysema and other respiratory ailments.

Azza El-Husseini





WATER POLLUTION: THE NILE AND THE MEDITERRANEAN COAST RECEIVE HEAVY EFFLUENT LOADS

The Nile is the main and practically the only source of fresh water in Egypt (with the exception of some water pumped out of the ground and the desalinization projects for some cities far away from the Delta). Given the fact that on both sides of the river there are towns all along it, the considerable load of polluted effluents that it receives can easily be explained. Monitoring the waters of the Nile is of the utmost importance in order to make sure that they are able to absorb, dilute and precipitate pollutants of all kinds. In fact the polluted water is used many times over for industrial and irrigation purposes before it is finally dumped into the sea.

Monitoring stations have been set up along the river. There are 22 large-scale collecting units for industrial effluents between Aswan and Cairo which dump more than 300 million m³ into the Nile and 45 piping systems dumping approximately 4,000 million m³ of agricultural wastewater. Pollution also comes from ships plying the Nile (an important tourist activity); 6 stations have been set up to receive effluents stored on ships.

Concerning the coast, the city of Alexandria and the bay of Aboukir on the Mediterranean are two critical areas. In Alexandria, about 6 million m³ per day of agricultural run-off water are evacuated west of the city; it contains a heavy load of chemical fertilizers and trace metals.

As to urban sewage, it is dumped into the sea by more than 20 collecting units set up along the coast without any treatment at all. Since the city is a centre of summer tourism, it is very urgent to set up treatment sta-



tions (two are currently being completed).

Monitoring carried out for a year off the Alexandria beaches showed that microbiological pollution by far exceeds international standards. Mercury levels in coastal fish, pesticides and PCBs also reach a critical level. In the bay of Aboukir, the life cycle of fish is seriously threatened by the 2 million m³ per year of "black effluent" discharged continuously by the paper mills of El-Tabya. Fisheries statistics show that in this area catches have fallen spectacularly. Moreover, it is sediment samples from the southwestern part of Aboukir Bay that contained the highest concentrations of chlorinated hydrocarbons.

However, to this "native" pollution, one must add pollution from tankers' ballast waters dumped in the two areas of the Eastern Mediterrane-

an which were initially approved for that purpose by the IMO; these operations have been prohibited under the new amendments (as of 1978) to the International IMO 1973 Convention. There are also plastics, packaging and other litter dumped in considerable quantities into the sea by the liners and cruisers sailing off the Egyptian coast especially during the peak tourist periods and litter dumped by the heavy traffic due to the proximity of the Suez Canal.

*(Data: MAP/UNEP
Case Study on the Nile Delta;
Blue Plan Report,
Sophia Antipolis)*



EGYPT WITHIN MAP

On February 16, 1976 Egypt signed the Barcelona Convention and the first two Protocols (Dumping, Emergency) and ratified them on August 24, 1978. It then signed and ratified the LBS Protocol and the SPA Protocol (1988 and 1989 respectively).

Egypt's participation in MAP concerns all the components of the Programme:

- Egyptian experts and trainees participated in the training courses organized by the Regional Activities Centres and in the various programme activities.
- A number of national seminars on the prevention and control of oil pollution were held in Alexandria in the framework of collaboration between REMPEC (Malta) and IMO. Two seminars are organized each year with the support of the European Economic Council.
- The National Institute of Oceanography and Fisheries has taken an active part in MED POL I (pollution monitoring and research, 1975-1980), especially on the problem of pollutant transfer along the coast. Through MAP/UNEP's assistance, it was possible to organize training courses and improve maintenance of laboratory equipment.
- Egypt has submitted 12 projects in the framework of MED POL II (1981-1990), three of which have been approved for funding.
- Each year, an agreement for environmental monitoring is signed between Egypt and MAP to support national institutions and research centres participating in sample taking and analysis to monitor pollution in the Mediterranean Sea.
- Finally, Egypt has proposed a CAMP for the Fuka area. This programme has been adopted and is in the preparatory phase. The preliminary studies along with field trips have been carried out by experts from the Split centre and Egyptian experts.



Egypt has hosted several MAP meetings: the Bureau Meeting in November 1984, the 3rd Expert Meeting for the revision of the Off-shore Protocol on October 4 and 5, 1991, the 7th Ordinary Meeting of the Contracting Parties from October 8 to 11, 1991, the National Expert Meeting on Port Reception Facilities in the Mediterranean, between the 14th and the 16th December, 1991 (the latter organized by REMPEC) a training course in the field of statistical treatment and the analysis of data on marine communities during the period 9 to 19 December 1991 at Alexandria.

Egypt has held the Presidency of the Bureau since the Athens 1989 Meeting of Contracting Parties when Mr. Atef Ebeid, Minister of Cabinet Affairs and Minister in Charge of the Environment was elected. Mr. Ebeid was re-elected to the post during the Contracting Parties Meeting at Cairo in October 1991. □

• Egypt has participated in developing national scenarios which were then integrated in the final Blue Plan Report resulting in a comprehensive prospective study for the Mediterranean Basin.

• Within the PAP framework, Egypt participated in the following projects: "Water Resources Development for Mediterranean Islands and Isolated Coastal Areas" (Desert Institute), "Physical Planning in Earthquake-prone Areas" (Institute of Astronomy and Geophysics), "Promotion of Soil Protection" (Faculty of Agriculture, Alexandria University).

• A National Contingency Plan has been formulated according to the facilities available and taking into consideration the necessity for co-operation among neighbouring countries, in emergency situations of oil spillages.



THE EGYPTIAN INSTITUTIONAL FRAMEWORK FOR THE PROTECTION OF THE ENVIRONMENT

For the last 10 years, successive Egyptian governments have been setting up decision taking and co-ordination mechanisms to parry the threats on the environment. In 1981, a Ministerial Committee for Environmental Affairs was created by President Sadat. The Committee was established to discuss and co-ordinate environmental policy, with representatives from 14 ministries. As there was little integrated environmental legislation in the country, the Committee sought to formulate a uniform pattern of action for enforcing existing legislation. At the Committee's request in 1982 the People's Assembly adopted Law Number 48 for protecting the River Nile and Other Bodies of Water Against Pollution. This updated an unenforceable 1962 law regulating pollution of the Nile. A license from the Ministry of Irrigation, after consulting the Ministry of Health is required for emissions of wastes of any kind into the Nile and its tributaries. However, a precise specification of wastes, tolerable limits and treatment technologies remains to be drawn up.

Concerning environmental research, the main role is played by the Academy of Scientific Research and Technology which financed a project on the effects of liquid effluent elimination on the coast. Responsible for the protection of the Mediterranean marine environment is the Academy of Scientific Research and Technology's Research Council. Moreover, several research institutes are affiliated with the Ministry of State for Scientific Research (the National Institute for Oceanography and Fisheries, the National Research Centre), or with Egyptian universities (Public Health Institute and the Oceanography Department of the University of Alexandria).

In 1982, environmental protection was given a more coherent and effective organization, through the setting-up of the Environment Affairs Agency to provide liaison between the Cabinet of Ministers and the various ministries and agen-



cies involved in environmental protection. The Agency, *inter alia* prepares the National Plan for environmental studies setting up priorities for implementation to be submitted for approval to the Supreme Committee for Policies and Economic Affairs, studies the environmental laws in the developed countries and prepares a set of draft laws appropriate for Egypt and also studies and proposes the different standards, measures and regula-

tions required for the protection of the people against pollution hazards. The Agency's budget for 1982-83 was \$8 million.

In January 1983, President Hosni Mubarak announced that water quality and sewage treatment was the number one national priority for the next 5 years. Egypt committed itself to investing in the construction of sewage treatment facilities for Cairo and Alexandria. Two of them will soon be completed in Alexandria. Since 1977, the United States Agency for Economic Development has spent considerable amounts in this area, matched by sums from the Egyptian government.

The 1987-92 Five Year Plan identifies 4 priority areas for future environmental efforts: \$258 million is targeted for pollution control and \$222 million are allocated to protect the Nile and other waterways from industrial wastes. Other monies will be spent on nature parks and wildlife reserves, an environmental monitoring network and environmental education.

After the industrialization of the 60s, many scientists became concerned about the environmental impact of such economic development. Their research and the data they collected made the government more sensitive to the problem and to the need to take urgent measures. This heightened sensitivity was reinforced by pressure, counselling and initiatives undertaken by two eminent scientists: Dr. Mostafa Tolba, a distinguished plant physiologist and microbiologist who was Undersecretary of State for Higher Education and Head of the Egyptian Delegation to the 1972 Stockholm Conference before becoming Executive Director of UNEP and Mr. Mohamed Kassas, a botanist, ex-President of IUCN and now a Senator. Recently environmental protection was reinforced by the emergence in Cairo of an incipient Green Movement especially active with the young. □

Sources - References

This special dossier was based on data kindly communicated by Professor Samir Ghabour, Cairo University, by the CEDEJ Franco- Egyptian team, Cairo (booklet on protection of arable land and water). Information was also taken from: Peter Haas, Saving the Mediterranean, Columbia University Press (for the institutional framework); Gilbert White, The Environmental Effects of the Dam at Aswan, Environment 30(7) (High Dam), G. Sestini, Implications of Climatic Changes for the Nile Delta, UNEP Athens, 1988, The Middle East Review, 1990, 1991. References are given for the Blue Plan excerpts. The article on pesticides owes much to the Greenpeace International Report quoted in it and also to the MAP document on organophosphorus compounds.