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THE EIGHTH ORDINARY MEETING AT ANTALYA

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THE EIGHTH ORDINARY MEETING OF THE CONTRACTING PARTIES IN ANTALYA

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Cover photograph of Süleymaniye mosque and the Golden Horn by Erdal Yazici.

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At the Antalya meeting (Oct. 12-15, 1993), the representatives of the Mediterranean coastal states and the EEC, elected the new Bureau and its President (Turkey) and unanimously approved the admission of Croatia, Bosnia - Herzegovina and Slovenia. Moreover, they focused the activities of the Mediterranean Action Plan on concrete priorities in order to obtain a stricter financial management. They decided that the Ninth Ordinary Meeting would be convened in Barcelona in 1995, which would mark the twentieth anniversary of MAP and become the starting point of a new phase of cooperation.

The Eighth Ordinary Meeting of the Contracting Parties to the Barcelona Convention was held at the Falez Hotel, Antalya, Turkey, 12-15 October, 1993. Fourteen coastal states and the EEC were represented. Representatives from seven UN bodies and specialized agencies, eight NGOs and the five Regional Activity Centres also participated. At an informal meeting of heads of delegations, held just prior to the opening of the plenary, it was decided to recommend to the meeting to admit three new States "reconfirming their wish that any Mediterranean Coastal States recognized by the United Nations which expressed their wish be admitted to the Barcelona Convention". To take into account the increase in the number of Contracting Parties, the heads of delegations had also agreed on the principle that the Bureau should be enlarged from 4 to 6 members (by adding two new vice-presidents).

The new enlarged Bureau

Dr. Mohammed Fawzi, Director of the Coastal Areas Programme of the Egyptian Environmental Affairs Agency, opened the meeting, on behalf of the President of the outgoing Bureau, Mr. Atef Ebeid, Minister in charge of the Environment. Then Mr. Riza Akçali, Minister of Environment of the Republic of Turkey welcomed all participants on behalf of his government and outlined the progress made in his country for better environmental management. Mr. Peter Schröder, Director of Oceans and Coastal Areas Programme Activity Centre (OCA/PAC) UNEP, addressed the meeting on behalf of Ms. Elizabeth Dowdeswell, Executive Director of UNEP, concluding as follows: "It is fair to say that MAP has not just kept pace with the challenges posed by increasing development and the resulting impacts on the environment. MAP has in fact played a pro-active role and, under the guidance of the Contracting Parties, has



Mr. P. Schröder, Mr. R. Akçali, Mr. M. Fawzi, and Mr. L. Jeftic on the platform at the meeting

displayed the foresight and action orientation which has made it an example for the whole Regional Seas Programme". Then three messages from Turkish personalities were read, the first from Mr. Süleyman Demirel, President of the Republic, the second from Ms. Tansu Çiller, Prime Minister and the third from Mr. Ismet Atilla, Minister of Finance. The plenary, after amending the Rules of Procedure in conformity with the recommendation of the heads of delegations, elected the new Bureau for the 1994-1995 biennium with the following enlarged composition: President: Riza Akçali (Turkey); Vice-Presidents: Chaouki Serghini (Morocco), Joaquin Ros Vincent (Spain), Serge Antoine (France), Abderrahmen Gannoun (Tunisia); Rapporteur: Hratch Kouyoumjian (Lebanon).

Admission of three new Mediterranean States

Croatia, Bosnia-Herzegovina and Slovenia had been invited to Antalya as observers. The meeting unanimously endorsed the admission of these three new independent States, recognized by the United Nations, to the Convention and its related Protocols. The representatives of these States made statements thanking the other Mediterranean States for their unanimous decision and on behalf of their governments pledged to fulfil all obligations emanating from the legal instruments of the Barcelona Convention (see Box p. 4).

The interventions of the States

While introducing the Progress Report for the past biennium, Mr. Ljubomir Jeftic, Deputy Coordinator of the Mediterranean Action Plan, drew attention to the reasons for satisfaction, which included the CAMPs, the initiation of a process leading to an Agenda 21 for the Mediterranean,



The mayor of Antalya, the governor of the province of Antalya, the Turkish Minister of the Environment and Mrs. Akçali at the opening of the Eighth Ordinary Meeting

the Cairo Declaration, the research and training activities, and to the reasons for dissatisfaction, especially the unpaid pledges exceeding US\$ 4.5 million which hindered the smooth running of the programme. This checkered progress of stop and go was taken up again during the general debate. Several representatives took the floor to refer to progress made and to put the MAP implementation into perspective. A synthesis of these juxtaposed and sometimes converging views would include the following: inadequate coordination between the programmes undertaken in the region (Morocco); the need to review the working methods, rather than set up new institutional structures and draft new legal texts (France); a better integration of cooperation mechanisms and an urgent need to pay the outstanding pledges (Algeria); redefinition of objectives and updating of MAP after Rio (Tunisia, Italy, Greece); MAP is not and should not become a body for sustainable development (Spain); more active mobilization of social partners, such as NGOs (Greece); new balancing of activities (Egypt). Finally, at the beginning of the debate, the representative of Israel observed that the Middle East was entering an era of peace which

would also benefit the environment and several speakers expressed their satisfaction concerning the agreement between Israel and the PLO.

The debate on the budget

Having reviewed the recommendations on activities and the corresponding budgetary allocations, the plenary debated the content and resources of the programme; Mr. Nay Htun, new Deputy Executive Director of UNEP, pointed out the possibilities for multilateral funding (particularly through the GEF) and the support that UNEP would extend to MAP. In the course of the debate, several representatives expressed their view that the increased contributions asked of them were too high and favoured a return to the 1992-1993 level. Others felt that the budget should be increased in view of the deteriorating environmental situation. In order to reconcile these views, participants decided to set up a working group composed of heads of delegations to consider MAP principles, programme priorities and elements for the budget; the Bureau would then meet to prepare a recommendation for the plenary. On its

recommendation, the Secretariat submitted a revised scale of contributions by the states for the 1994-1995 biennium based on an increase of 5% over the 1992-1993 level of contributions. Italy said that it was willing to increase its contribution in order to cover the difference between the combined contribution of Croatia, Slovenia and Bosnia - Herzegovina and that of former Yugoslavia. Spain pledged two voluntary contributions of US\$ 200,000 (one for 1994 and one for 1995) to be used for Meetings of the Contracting Parties. Then a draft resolution prepared by the Bureau concerning principles and priorities for the reorientation of the Mediterranean Action Plan was adopted by the Meeting. It

states *inter alia* that the Parties "decide to further orient MAP towards concrete and operational activities, leading to early tangible results; to identify and mobilize financial resources external to MAP and to assist in the formulation of relevant projects eligible for such financing; to strengthen coordination between MAP and other institutions and programmes operating in the Mediterranean {...}; to implement a stringent management and a rational personnel policy with a view to avoiding the proliferation of expert groups and consultants". On the chronic problem of unpaid contributions, which has for years caused problems for the programme and fostered a certain malaise (the deficit for 1992-

1993 activities amounted to US\$ 2.4 million), it was decided that a working group would be set up to prepare a recommendation for the plenary. This recommendation which was adopted, provides for the creation, on an experimental basis, of a **Revolving Fund** with an initial capital of US\$ 1.7 million to be managed by the MAP Coordinating Unit and used for activities already approved by the Contracting Parties for the biennium, which cannot be covered by the Mediterranean Trust Fund. In order to complete this new mechanism, the Directors of the Regional Activity Centres and representatives of the UN cooperating agencies were invited to revise their activities and the figures both for the end of 1993 and

THE THREE NEW MEMBERS OF THE MEDITERRANEAN FAMILY

The accession to the Barcelona Convention of Bosnia-Herzegovina, Croatia and Slovenia follows the dissolution of the Former Federation of the Republic of Yugoslavia and the new reality that emerged; these three new independent states were recognized by the United Nations on 22 May, 1992 and each has a coast on the Adriatic. The last accession of a Contracting Party

before that had been Albania in June 1990. Given the current situation in the countries that emerged from the Former Yugoslav Republic, the following information is given simply in order to draw a quick profile of the three new members without vouching for its accuracy (Statistics 1991, taken from the State of the World, 1993/94).

BOSNIA-HERZEGOVINA:

Surface: 51,129 km²; population: 4,481,000; capital: Sarajevo, population 525,980; length of coast: 24,8 km. Natural parks of Kozana, Sutjeska, Mostar. Industry mostly linked with exploitation of underground resources (coal, lignite, lead). GNP/per capita: US\$ 2,950. Part of the production of former Yugoslavia: 12%. Exports (in million US\$): 2,187. Language spoken: Serbo-Croatian.

CROATIA:

Surface: 56,538 km²; population: 4,685,000; capital: Zagreb, population: 930,753; length of coast: 5,773 km (including islands). Production of cereals, hydroelectric energy and manufactured products (textiles, agro-foods, chemicals). Natural parks of Brioni, Mljet, Paklenica, Dubrovnik. MAP: Coastal Area Management Programme of Kastela Bay; Croatia hosts in Split the Priority Action Programme/Regional Activity Centre (PAP/RAC).

GNP/per capita: US\$ 3,300. Part of the production of former Yugoslavia: 25%. Exports (in million US\$): 2,495. Language spoken: Croatian.

SLOVENIA:

Surface: 20,251 km²; population: 2,110,000; capital: Ljubljana, population 323,291; length of coast: 41,1 km. Hydroelectric energy, coal and lignite. Considerable manufacturing plants in Ljubljana (electrical) and Maribor (automobiles). GNP/per capita: US\$ 3,300. Part of the production of former Yugoslavia: 21%. Exports (in million US\$): 4,800. Language spoken: Slovenian.

the 1994/1995 exercise, including only firm commitments and taking into consideration the principles and priorities in the resolution, on the basis of the approved 5% increase in contributions. The budget adopted contains US\$ 6.28 million for 1994 and US\$ 6.39 for 1995, in addition to the abovementioned Revolving Fund.

Activities approved

The recommendations on the legal component proposed by the Secretariat were adopted by the meeting: a Plenipotentiary Conference to be convened in 1994 (to be immediately preceded by a short expert meeting) for the adoption of the Offshore Protocol; a second expert meeting in 1994 on the "Hazardous Wastes" Protocol with a view to convening a Plenipotentiary Conference in 1995 for the adoption of this instrument (with the reservation of France) and active support for the total ban of export and transport of dangerous wastes to developing countries, and organization by the Secretariat of a national experts meeting (the date of which is to be set by agreement with the Bureau) to review amendments to the Dumping Protocol and the possibility of adapting the texts of the Convention and the other Protocols to the latest developments in international environmental law. As was requested by Italy, the Scanzano Centre for Remote Sensing is integrated in MAP and thus acquires the status of Regional Activity Centre; its financing will be entirely taken over by the host country and its data and training programmes will be put at the disposal of the Contracting Parties. Three new CAMPs were approved for Israel, Malta and Lebanon while other CAMPs are continuing or ending according to schedule. The recommendations on pollution by carcinogenic, teratogenic and mutagenic substances (with the inclusion of the precautionary principle) were also adopted.

Tunis and Barcelona in the spotlight

Three states - Spain, Malta and Tunisia - had offered to host the Ninth Ordinary Meeting in 1995. The meeting accepted the Spanish offer which was accompanied by a generous proposal to cover all costs and was further promoted for "sentimental" reasons (see box "The homecoming to Barcelona"). It must be pointed out that the date was shifted from October to April/May 1995, the decision to be taken by the Bureau at its February 1994 meeting, in order to facilitate national procedures for the approval and payment of contributions. Concerning Tunisia, it will host in November 1994, a meeting with the title "Mediterranean 21" Conference on the relationship environment/sustainable development as an important step in the preparation of the Ninth Ordinary Meeting. All coastal states and Mr. Peter Schröder, UNEP representative, pledged their full support to Tunisia for the organization of the "Mediterranean 21" Conference. The participants of the Antalya Meeting congratulated Turkey on the excellent organization of the meeting and thanked the Minister of Environment, the Governor and the Mayor of Antalya for their warm welcome. The Turkish media and the international press gave large coverage to the debates and conclusions of Antalya and stressed that "for the first time since the Rio Summit, the Mediterranean met at the highest level to envisage the future of its environment" (*Turkish Daily News*). About 60 Turkish and foreign journalists were present at Antalya and on 12 October, Mr. Riza Akçali, Turkish Minister of the Environment, Mr. Peter Schröder, OCA/PAC Director and Mr. Ljubomir Jeftic, Deputy Coordinator of MAP, briefed the journalists on the questions debated at the meeting and on the state of the marine environment, during a press conference organized at the Falez Hotel.

The homecoming to Barcelona

*In the morning of 28 January 1975, representatives of 16 Mediterranean coastal states arrive at the Palacio de Congresos in Barcelona - second largest city in Spain and capital of Catalonia - for an intergovernmental meeting convened by the "young" UNEP (set up in December 1972 by the UN General Assembly after the Stockholm Conference). A week later the coastal states representatives adopt the **Mediterranean Action Plan**, regional mechanism with three components: integrated development planning and management of resources, monitoring and research, institutional and financial structures and the principle of a framework convention (adopted a year later in Barcelona). Obviously, the Action Plan was not born during that one "historical" week: it is the conclusion of a long process of preparation, launched with the first meeting of the Administrative Council of UNEP in June 1973, which brought together Mediterranean government experts and international institutions (General Fisheries Council for the Mediterranean (CGPM) of FAO, IOC, UNESCO, IMCO) during several parallel meetings of scientists and legal experts under the auspices of a plenary committee of a political nature. **"The governments at the deathbed of a dying Mediterranean"** was a headline in a Spanish paper the day after the adoption of MAP, expressing a condescending scepticism which was the fashion at the time. Twenty years later, the Mediterranean countries will meet again in Barcelona for the Ninth Ordinary Meeting. It would be unrealistic to pretend that the "dying" Mediterranean has fully recovered as if by miracle, but the diagnosis was made and the appropriate therapy has started to produce results. Some problems became less serious, others appeared in the meantime and it might be better to think of the Mediterranean as a "convalescent" which under our constant vigilance will take a long time to get well. Might the 1995 Barcelona homecoming offer the possibility for launching a new phase for action, a MAP II, as one representative at Antalya wished? Doubtless, the coastal states and the European Union, in addition to the commemorative aspect, will want to express both the justification of past efforts and a renewed political will.*

THE RAMOGE COMMISSION: A CONVINCING EXAMPLE OF SUB-REGIONAL AGREEMENT

Three Mediterranean Countries - France, Italy and Monaco - have co-operated since 1982 in order to protect the marine environment they share in Liguria and Provence. The effort has been so successful that other Mediterranean sub-regions could be inspired by it.

The idea behind the RAMOGE agreement came from a simple realization: France with the Côte d'Azur and Italy with the Riviera have two world famous tourist areas where sea sports and leisure are centered around two large urban poles: Nice (Population 340,000) and Genoa (Population 760,000). Since pollution knows no frontiers, any chronic or accidental pollution in the one area, inevitably affects the other. In other words, at the financial level (and since tourism is an essential resource) their success is linked to the environment they share. Why then not act jointly? The proposal was made in the fall of 1970 by Prince Rainier of Monaco (the principality lying between Nice and Menton and near the Italian border) with the full support of ICSEM (International Commission for the scientific exploration of the Mediterranean Sea). After preliminary studies, a tripartite agreement between France, Italy and Monaco was signed on 10 May 1976. It set up a commission, called the RAMOGE Commission, *with the mandate to establish a closer collaboration between the competent services of the three governments to combat marine pollution in a well defined geographical area from Hyères, in France to Genoa in Italy.* The acronym **RAMOGE** comes from the French city Saint-**R**Aphaël, located very near Hyères, **M**ONACO and **G**ENOA. The commission is assisted in its work by a Technical Committee. The agreement entered into force in 1981 and after two informal meetings, the Commission

met for the first time 19-20 February, 1982, in Monaco. Since then, the agreement has been strictly respected and both the Commission and the Technical Committee have met more than once a year to establish the programme of activities and decide on the measures to be taken.

Important results

The results of this agreement have been considerable from 1982 until today. A collective awareness developed rapidly and contributed to an increase in knowledge and rapid implementation of measures taken. In these 11 years, through the work of the Commission, the Technical Committee, and the specific working groups which were set up, improved knowledge of the origins of the various forms of pollution and the phenomena that govern its spread throughout the RAMOGE environment has been gained. Systematic studies have been carried out on all coastal discharge and on watersheds. Between 1984 and 1987, RAMOGE launched a series of joint oceanographic campaigns for the monitoring of marine discharge from two coastal rivers: Var (in France, which flows into the sea west of Nice) and Roya (in France and Italy, entering the sea at Ventimiglia, an Italian frontier town). Exchanges and meetings among scientists and officials of the three countries brought about better knowledge of the regional bodies concerned with pollution control, a comparison of the three national legislations and on a larger scale, the satisfaction of policy-makers, elected officials, mayors and other regional/local authorities of seeing their towns and their coasts criss-crossed by a vigilant and effective network of experts. In terms of anti-pollution activities, efforts have mainly focused on the implementation of a very large monitoring pro-

gramme of the bathing areas - from the point of view of public health - the setting up of aerial monitoring of the coast (daily during the summer) and the implementation of another vast public health programme which includes: construction, restructuring and extension of sewerage collection systems of local communities, the building of underwater outfalls which by grouping them together diminishes the number of direct discharges into the sea, the construction of waste treatment plants (from 108 in 1972 the number of those in operation increased to 189 in 1988 for the area Alpes Maritimes-Monaco-Province of Imperia alone). Public awareness was enhanced through poster campaigns, audiovisual material for the young, radio programmes from a ship sailing along the coast, the awarding of an annual prize of FF 30,000 to a student or young researcher for a research project, etc. It should be pointed out that both the activities and results of the programme benefit an area which obviously is larger than that strictly covered by the agreement: in fact the whole coast from Marseille in France to La Spezia in Italy is positively impacted by RAMOGE. Finally, the Commission, in October 1992, organized an international colloquium on the ecology and protection of the Mediterranean coast, with the participation of about 40 high level experts.

Extension to accident marine pollution

The accident of the tanker "Haven" in the port of Genoa directly concerned the RAMOGE area: on 11 April 1992, the ship carrying 144,000 tons of crude oil explodes and catches fire. It is towed, still burning, away from the coast, then on 14 April it sinks to a depth of 450 m. The initial operations, coordinat-

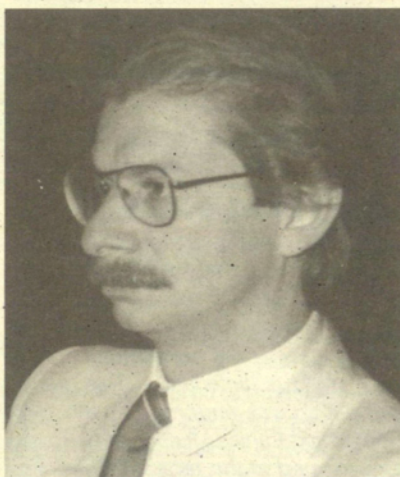
EUTROPHICATION IN THE MEDITERRANEAN

An interview with Francesco Saverio Civili

ed by the Genoa port, and the subsequent phases of securing the wreck, cleaning up, monitoring and assessment of damages illustrated the need for solidarity among neighbouring states. Even if it is the most serious to occur in the Mediterranean so far, the accident of the "Haven" had a "happy end" if one may say so (a large part of its cargo was eliminated in the fire). However, what if such an accident were to be repeated under unfavourable circumstances? The RAMOGE officials focused their efforts on a contingency plan called **RAMOGEPOL** (a contingency plan for accidental marine pollution in the RAMOGE area set up by France, Italy and Monaco). This agreement among officials responsible for combating accidental marine pollution is not one more international convention, but an **operational** plan which promotes coordination of action and cooperation in the field. Its adoption required extending the sphere of competence of the RAMOGE Commission through a codicil to the 1976 agreement signed in 1992; RAMOGEPOL was signed on 7 October 1993. As was pointed out a week later at Antalya by the representative of France, it was the first such agreement to be adopted in the Mediterranean and could serve as a model for other countries. At the same meeting the Director of REMPEC (the Malta Centre) underlined the importance of such operational agreements to facilitate mutual assistance among neighbouring states and said that, with the financial assistance of the European Union, REMPEC was currently preparing two sub-regional emergency plans for Cyprus, Egypt and Israel in the eastern Mediterranean and Algeria, Morocco and Tunisia in the western Mediterranean. The RAMOGE example is catching on in the Mediterranean!

The phenomenon of eutrophication in the Mediterranean has been the subject in the last few years of many meetings and scientific colloquia and treated in several books and articles; a proof of this is the recently published volume of the Proceedings of the International Conference held in Bologna in March 1990 on "Marine Coastal Eutrophication" which runs to 1300 pages (). MAP/UNEP sponsors or supports several relevant activities and has made eutrophication and the concomitant plankton blooms the main area of MED POL research, since half of the credits of this component are allocated to them. Mr. F.S. Civili, MAP expert, speaks about this important problem of the marine environment in the following interview:*

(* Marine Coastal Eutrophication, Proceedings of an International Conference, Bologna, Italy, 21-24 March 1990, Elsevier Science Publishers B.V., Molenwerf 1, P.O. Box 211, 1000 AE Amsterdam, The Netherlands.



F.S.Civili was born in Rome in 1951. He did his graduate studies in marine biology in Italy and his postgraduate work in applied chemistry in Switzerland. He then worked at the University of Rome and in 1977 joined the Regional Seas Programme of UNEP then based in Geneva. In 1982 he comes to Athens as expert of the Mediterranean Action Plan. He is now first officer and marine scientist and deals with the scientific aspects of the programme.

Medwaves: Before starting our discussion, perhaps we might review for the non-specialist the phenomenon of eutrophication, what we mean by eutrophication, that is.

Saverio Civili: *Indeed, since both the public and the mass media seem to be confused on the subject. In the past few years, eutrophication, especially in the summer season, has been on the front page of newspapers, but the tendency is to link its symptoms (for instance, massive death of fish) to direct pollution by incriminating one or another imaginary pollutant. But things are not that simple. Eutrophication must be considered firstly as a natural phenomenon: it is the enrichment of the sea with nutrients from different sources. These nutrients promote what is called "primary production", the plant mass of phyto-plankton, which in turn serves as food to other living organisms going up the food chain to fish. A "eutrophic" sea ("well nourished" in its etymological sense from Greek) has a higher productivity of shellfish and fish than an "oligotrophic" sea ("not well nourished"), poor in nutrients. The phenomenon has a negative impact only when, through discharge due to anthropogenic activities, there is excessive input of nutrients, so that algae multiply at a very fast rate, overrun the sea and give it this turbid gelatinous appearance that upsets holiday-makers; when this organic mass ages, it depletes the seawater of oxygen and brings about a state of anoxia (lack of oxygen) which causes asphyxia and death in fish. The final episode and the most spectacular.*

Medwaves: Could one then say that eutrophication is not really pollution but rather the perversion, the excess in a natural phenomenon?

S.C.: *There has been a rather unfounded controversy among scientists on this matter. Let us say that eutrophication becomes the consequence of pollution when input from anthropogenic discharge into the sea reaches a certain level. Rivers, industrial effluents, agricultural runoff, sewage, etc. bring into the sea an excessive load of salts, especially nitrates and phosphates, which favour phyto-plankton blooms. Thus, between the causes of the phenomenon and its manifestations, both well known, there is*

the process of eutrophication *per se* which is governed by various factors, physical, chemical, geomorphological, climatic, meteorological, oceanographic, etc. Some aspects are not fully understood as yet, which is precisely what is currently being studied.

Medwaves: Can we say that eutrophication is spreading in the Mediterranean?

S.C.: There is no doubt that it is, both in terms of frequency and extent. However it is not spreading everywhere: it is limited to certain "high risk" areas where the water exchange is more difficult, such as semi-enclosed or enclosed water masses, bays, lagoons or estuaries (because of watercourses flowing into them). There is extension of the phenomenon in the sense that more and more of these "high-risk" areas are affected more and more frequently around the Mediterranean basin. I myself come from a country, Italy, which has been seriously affected by eutrophication in the northern Adriatic, since the first serious incidents, which date back to 1975, became more serious in the summers of 1988 and 1989. These "red tides" caused by the multiplication of dinoflagellates (unicellular algae) along with the development of massive algal mats lead to the death of thousands of tons of mollusks and benthic fish. It was calculated that in July 1989 approximately 10,000 km² of the sea were covered with a gel layer! Obviously serious and lasting impact on tourism ensued for the 100 km of coast most directly concerned which represented 40 million nights each summer, and that does not even count the economic implications for fisheries and aquaculture. What is at fault, we know, is the river Po - along with some nearby coastal rivers - the watershed of which covers an area of 70,000 km², the most industrialized and most populated of Italy which at the same time has large scale agriculture with heavy use of chemical fertilizers and pesticides. In order to remedy the situation, we must first control and reduce at the source the load in nutrients of these rivers. Which means a programme to control pollution for 1/4 of the Italian territory, enormous investments, the multiplication of treatment stations, construction of longer outfalls set deeper still, draconian legislation, etc. The plan has been launched, mobilization for its implementation has been carried out at national and regional level, but years will go by before the situation changes.

Medwaves: Except for the Adriatic, which are the other "hot spots" around the Mediterranean?

S.C.: All the estuaries of the large rivers like the Po - the Rhone in France, the Ebro in Spain, the Nile in Egypt - present a similar situation. In the eastern Mediterranean, where however the waters are oligotrophic, the industrial and urbanized bays are often affected by eutrophication episodes which are becoming more and more frequent: such as in Izmir, Iskenderun, Alexandria, in the Ambrakikos, Thermaïkos and Saronic Gulfs (the latter because of the sewage outfall of the Greater Athens area). In each case there is considerable cost to tourism and fisheries and of course negative impact on public health due to the presence of algal toxins.

Medwaves: Is there a concrete action within the MAP framework concerning eutrophication?

S.C.: For years now, MAP has organised activities on the problem. In March 1987, a scientific workshop was organized in Bologna within the MED POL framework. In April 1989, a meeting was held in Athens to study specifically the implications and the ways to control the undesirable plankton blooms; then in 1990, a MED POL meeting adopted a recommendation that 50% of the total funds allocated to research within MED POL (US\$ 295,000) be used for research on eutrophication and plankton blooms (we must point out that certain scientific groups like GESAMP consider this problem as the most serious for the marine environment after the development of the coast and the hinterland). This recommendation was endorsed by the 1991 Contracting Parties Meeting at Cairo and reconfirmed at the recent Contracting Parties Meeting at Antalya. In March

1992, an advisory group examined the matter in order to find the best possible approach for a coordinated, regional research programme. It proposed that eutrophication, which is mainly a local phenomenon, be looked at through a series of case studies of the most affected areas. At the same time, a team of consultants is currently preparing a detailed document entitled "Evaluation of eutrophication and plankton blooms in the Mediterranean and control measures" which will be presented to the joint meeting of the Technical Committees in 1994, then submitted for approval at the Ninth Ordinary Meeting at Barcelona in 1995.

Medwaves: You mentioned meetings, scientific programmes, research. Is all this translated into concrete results for the control of eutrophication and plankton blooms?

S.C.: Concrete measures, as such, can only be taken by the various States and I remind you that they imply very large investments in all areas of pollution control in the future. However the measures, in order to be effective, must be based on a better scientific understanding of the processes involved, especially of the role of the various factors governing eutrophication, local conditions, the monitoring systems to be set up, the role of atmospheric inputs of nutrients, the real effects of the decrease in nutrient load, the processes of recovery in the affected areas, mathematical modelling of the phenomenon, etc. Finally, research also covers the legal aspects of eutrophication control; the on-going assessment I just mentioned will contain recommendations for measures, which, if adopted in Barcelona in 1995, will become commitments for the Mediterranean states. I believe that this brief overview is quite convincing as to the concrete and useful character of the activities organized.



MAP PUBLICATIONS

Technical Reports Series

MED POL/UNEP/WHO Report: **Biogeochemical cycles of specific pollutants (Activity K)- The survival of pathogens.**

This volume contains the final reports on three research projects 1992-1993. The first by a Spanish team of the University of Barcelona and an American team of the University of North Carolina, U.S.A., deals with the effect of expressing some of its genes on the survival of human enteric viruses and the impact of the presence of marine bacteria on the virucidal capacity of seawater. The second report by a French team from INSERM in Nice, analyses to what extent an enteric bacterium (*Escherichia coli*) is capable of expressing some of its genes in the marine environment in order to adapt to it. The study focuses on the genes or groups of genes that can protect the bacterium against marine stress factors. Finally, the third report by a Greek team of the University of Patras, studies the metabolic and structural modifications (enzymatic activities, alterations of protein synthesis of the outer membrane, modification of hemagglutination and changes of sensitivity patterns to antibodies of clinical *E.coli* strains) in order to illustrate their cellular alterations during starvation in seawater over time.

[\(MAP Technical Reports Series, No.76, 68 pages, Reports 1 and 3 in English, 2 in French\)](#)

MED POL/UNEP/FAO Report in co-operation with IAEA: **Designing of monitoring programmes and management of data concerning chemical contaminants in marine organisms.** This volume, with an introductory paper by G.P.Gabrielides (FAO Project Bureau of MAP), contains the main papers presented at the training workshop on which we reported in our last issue (**Medwaves**, No.28, p.3). The following topics are included: monitoring strategies, tactics and operational plans, contaminants to be monitored, matrices to be analyzed, correct sampling conditions, uptake, storage and elimination of chemical contaminants in marine biota, criteria for the selection of organisms for monitoring purposes, consistency in the data collection process, number of samples needed to detect trends, quality assurance and good laboratory practice. The specialist on data computerization in MAP writes on the computerization of marine pollution data. [\(MAP Technical Reports Series, No.77, 236 pages, English only\)](#).

MAP NEWS

Mrs. ELIZABETH DOWDESWELL, UNEP EXECUTIVE DIRECTOR, VISITED THE MAP COORDINATING UNIT ON 9 DECEMBER

In the morning of Thursday, 9 December 1993, Mrs. Elizabeth Dowdeswell, UNEP Executive Director, visited the headquarters of the MAP Coordinating Unit in Athens. She discussed matters pertaining to MAP with Mr. Ljubomir Jetic, Deputy Coordinator. Then Mr. Jetic introduced the experts and the staff members. Mrs. Dowdeswell also greeted the participants of the Inter-Agency Advisory Committee (IAAC) meeting on MED POL pollution monitoring and research, which was being held the same day at the Unit's premises. Mrs. Dowdeswell expressed her confidence in the future of MAP following the decisions of the Eighth Ordinary Meeting of the Contracting Parties in Antalya in October and in view of future developments, such as the appointment of the new Coordinator which would occur in early January 1994.

Meeting of experts on environmental legislation concerning specially protected areas and endangered species (Ustica, Italy, 16-18 September 1993)

Organized by the Regional Activity Centre for Specially Protected Areas, in collaboration with the Municipality and the Marine Natural Reserve of Ustica (Sicily, Italy), a meeting of experts on environmental legislation concerning specially protected areas and endangered species was held in Ustica, 16-18 September 1993. Experts from 13 Mediterranean countries (Algeria, Egypt, France, Greece, Italy, Libya, Malta, Monaco, Spain, Syria, Tunisia, Turkey) and representatives of IUCN and the Council of Europe participated in the meeting. SPA/RAC was the secretary for the meeting. During the three days of work, the meeting examined three main agenda items:

- Review of environmental legislation concerning specially protected areas and endangered species in the Mediterranean riparian countries;

- Implementation of the Protocol concerning Mediterranean Specially Protected Areas (Geneva, 1982);

- Adequacy of the Geneva Protocol for the establishment and management of marine and coastal specially protected areas. A series of recommendations for the possible amendment of the Geneva Protocol was one of the results of the meeting.



MAP CALENDAR	
Meeting of The Bureau of the Contracting Parties	2-3 February 1994 Ankara Turkey
MED-POL Phase III	April Turkey
Second expert meeting on dangerous wastes	19-22 April 1994 (dates and venue to be confirmed)
Review meeting of the Barcelona Convention and its 4 Protocols	19-23 September 1994 (dates to be confirmed by the Bureau)
Joint meeting of Committees	12-16 December 1994. Athens, Greece

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Editorial

To the visitor who crisscrosses the country, Turkey appears not so much a country but a world with astounding diversity and contrasts, already fully in the 21st century, representing the opportunities and the challenges of our planet. On the one hand, a rate of development which is among the highest among the OECD countries, associated with a demographic boom and urbanization largely uncontrolled and industrialization which is progressively geared (quite effectively) toward export. This is the strong, teeming, sometimes chaotic image of Istanbul and the other sprawling cities, the large coastal towns and all that this implies in terms of impact on the environment. On the other hand, the Anatolian plateau, its continental pride, fierce and silent, the inaccessible peaks of the eastern border, landscapes still free from human aggression but gradually transformed by the human exodus and the agricultural revolution. One could list all sorts of contrasts. West or east? North or south? Europe or Asia? Balkans or Middle East? Islamic or secular state? Modernity or tradition? State centralism or ultra-liberalism? In a direct line from Kemal Atatürk's reforms, to which, generally speaking, both the elites and the public opinion remain attached, the country has this unique characteristic of being all these things at the same time, of constituting the geometric locus of so many contrasts - as it was in the past the point where so many cultures, religions and influences coalesced; all this happens very easily, "cavalierly" one might say, like the inhabitant of Istanbul who goes to work across the Bosphorus and at the same time crosses from one continent to another, without even thinking about it. This complex geography and history, this country of 4 seas and 2 continents, this "old hand covered with rings stretched toward Europe" already fascinated the other peoples of the Mediterranean during Byzantine and Ottoman times. Moreover, the recent geopolitical upheavals have given the country a new perspective, with a vast area of potential influence from the Balkans to the Caucasus and Central Asia with their Turkish-speaking populations magnetized by Turkey's economic dynamism and cultural affinity. These very general reflections do not take us away from the environment; on the contrary, they draw the map which we need to understand it. The fact is that the envi-

ronment is today the highest priority, in terms of public awareness which started in the beginning of the 80s and has become a broad debate on the **quality of life** in which participate the mass media, the policy makers and the public opinion, in the cities which are the most affected by the degradation of the environment, but also in the rural communities of the interior. The following dossier is the second, after the one on Egypt (see Medwaves No.24), illustrating the practice to devote a special issue on the environmental problems of the country just elected to the Presidency of the Bureau of the Contracting Parties. It is a quick overview, but it cannot be limited to the Mediterranean coastal areas, since the problems of the interior and of the 4 coastal fronts are interwoven. Prof. Ergun Turkkan analyzes the most serious problems without mincing his words (p.11). The growth of cities is one of the most alarming aspects: Mr. Oktay Ekinçi reviews past errors in the case of Istanbul (p.14); two articles on the rehabilitation of the Golden Horn (p.17), and atmospheric pollution in Ankara and the general situation in Bursa (pp.17-18) give the reader an idea of the results of the first measures taken. Whereas the on-going large scale project in the Anatolian south-east is a bet on the future, its stake commensurate with the country (p.18), the protection of sites of reproduction of endangered species (p.19) and wetlands (p.20) is now on the agenda of public authorities and NGOs. As for the concept of sustainable development, officially adopted by the state, it is not a simple slogan but, in the case of Izmir and Iskenderun, a commitment voluntarily entered into, in which MAP takes an active part (pp.20-23) and which, it is hoped, will cover the whole coast. The intensity of maritime traffic, especially tankers passing through the Straits governed by international treaties, is of concern to the Turkish authorities (p.23). Finally, the decisive role that Turkey played in launching an Action Plan for the Environment of the Black Sea (p.24) (and of an economic zone bringing together all the states of the region) show Turkey's diplomatic opening toward countries from which it was isolated for 70 years because of the bipolar division of the world: the fact that this dialogue and this opening concern firstly pollution control and the protection of natural resources is an encouraging sign in a world that has lost its bearings and traditional balance.

TURKEY



PROFILE OF THE COUNTRY

Official Title

Republic of Turkey (proclaimed in 1923, after the dismemberment of the Ottoman empire).

Political Institutions

Secular centralized State, parliamentary multiparty democracy. Chief of State is the President of the Republic elected by the Assembly for a 7-year term. (Mr. Süleyman Demirel, since May 1993). The Prime Minister, one of the members of the Great National Assembly, is appointed by the President of the Republic (Ms. Tansu Çiller, since June 1993). The Great National Assembly has legislative powers and 450 members elected every 5 years.



AN OVERVIEW OF TURKEY'S ENVIRONMENTAL DEVELOPMENT AND SHORT TERM PERSPECTIVES

by Ergun Turkcan*

Geography

- Total area 780,000 km², extending from Europe to Asia through the Straits of the Dardanelles and the Bosphorus which link the Mediterranean to the Black Sea. 97% of Turkey is in Asia.
- Total coast length: 8,272 km, facing four seas: the Black Sea (1,695 km), the Aegean Sea (2,805 km), the Mediterranean (1,577 km) and the Marmara Sea (927 km). The latter being more or less an internal sea linking the first two.
- Prevailing mountainous relief (only 10% of the country is located under 250 m above sea-level, the average altitude is 1,250 m).
- Mediterranean climate to the west, continental on the Anatolian Plateau, mild and rainy along the Black Sea

Demography

- Population: 58,4 million inhabitants (1992). Forecasts: for the year 2000, 65-68 million; for the year 2025, 92-100 million. Turkey will thus become the most populated country of the north of the Mediterranean and will vie for first place in all the Mediterranean with Egypt.
- Capital: Ankara, 2,9 million inhabitants. Istanbul, 6,7 million, capital of the Ottoman Empire until 1923. Izmir, 1,8 million.
- Demographic increase: between 1975 and 1990 average rate of 2.3. Population density: 74,8 inhabitants per km².
- Illiteracy: 19.3% in 1990 (48.7% in 1970).

Economy

- Very high annual rate of increase: between 1980 and 1991, 5%. - GNP: US\$ 118,7 billion. - GNP per capita: US\$ 2,003. - Foreign trade as % of GDP: 15,7 (1992) (5,8 in 1970) - Exports have trebled since 1980: US\$ 12,9 billion in 1990 (of which 78.6% industrial products). Main partners: EEC (50.81%), Middle East (14.4%), USA (6.8%). Imports: US\$ 22,3 billion. Main partners: EEC (43.8%), USA (11.8%), Middle East (10.4%). - Negative factors: trade deficit, increase of external debt (US\$ 53.3 billion in 1992), inflation (66.0% in 1992), unemployment: 10.4 (official figure, in reality certainly higher). - Production of crude oil: 3.8 million tons a year (consumption: 23.5 million tons a year). - Foreign tourists: 7.1 million in 1992 (900,000 in 1982, or annual increase rate of more than 40%) which represented US\$ 3.7 billion in imported hard currency.

Turkey is among the countries that rapidly developed after World War II. According to World Bank data, between 1950 and 1975, Turkey experienced an average annual growth of 3.7% and jumped from 28th in 1950 to 18th place in 1975 in growth rating⁽¹⁾. Although various crises have arisen both in Turkey and in the world, it has sustained this development process. The country's performance between 1970-1980, again according to World Bank data, was 5.9% and between 1980-1991, during which the world suffered an economic crisis, it was 5.0%. During this period, the development performance of the world as a whole and of medium-income countries was recorded as half that of Turkey's⁽²⁾. Moreover, Turkey achieved this performance under the stress of rapid demographic growth: the average increase rate of population was 2.3% between 1970-1991⁽³⁾.

Industry and the service sector are the leaders in this process. Within a decade, while agriculture experienced a decrease from 19.6% to 16.2%, industry and the services increased their share from 28.6% to 30.2% and from 51.8% to 53.5% respectively⁽⁴⁾. According to recent data of the State Planning Organization (DPT), 55.8% (33.6 million) of the 60 million inhabitants with a US\$ 2,000 per capita income, live in cities and half of them in cities with a population greater than 500,000 and in three metropolises. This indicates an economy of rapid industrialization and urbanization. It is estimated that this trend will continue and even if the demographic rate decreases a little, the population in the year 2000 will be 68 million with a 1.9% demographic increase⁽⁵⁾ and there will be a rapid growth in the industrialization/urbanization process. Rapid industrialization/urbanization means higher demand for energy/electricity. The manpower that industrialization and the city services cannot absorb, is distributed in the tourist belts in coastal areas away from the big cities.

(* Prof. Dr., Gazi University, Department of Economics and President of the Turkish Social Science Association.

Therefore, the environmental problems of Turkey are the normal results of the industrialization/urbanization process which in turn results from a rapid growth of the population rate. Certainly, all typical development processes have shown the same pattern. However, two components are missing from the period between the 1770s and the 1970s: environmental awareness and mass tourism.

In the 1930s, when industry started developing and in the 1960s, when Turkey adopted the model of planned economy, it did not take into account or realize the environmental cost of such development, so absorbed it was with manufacturing the best products in its industry. Haliç, Izmit Bay and then the whole Marmara Sea, Izmir Bay, the fertile lands around the cities of Adana and Bursa were victims of industrialization. Industry and the services, due to the agricultural revolution of the 50s, caused migration from the rural areas to the big cities, mainly Istanbul and also to some relatively small cities with insufficient infrastructure and city planning. In this respect, we must not forget the improved health care resulting in an increase in population, the programmes for the eradication of malaria and tuberculosis and the improved prenatal and infant care, as well as the construction of the highway system which facilitated internal migration.

In the 1960s, the manpower that could not find work at home migrated to West Germany. This continued until the mid-70s. Then, because of the oil crisis and ensuing recession, Germany reduced its labour demand. Unplanned settlement and industrialization in the cities reached unbearable levels during this period. Furthermore, hundreds of thousands of vehicles manufactured by the developing local car industry were introduced to the cities which were not planned to carry this burden and contributed to the increase of uncontrollable urban problems⁽⁶⁾. The whole infrastructure, unable to cope, began to give alarm signals. Power failures and coal smoke pollution started reaching dangerous levels. It was at this point, that environmental awareness began to



increase in Turkey, as in the rest of the world, while the country, although late, started focusing on mass tourism. However, this delay was in a sense beneficial because Turkey is still one of the few countries whose long coasts on the Mediterranean are, on the whole, unpolluted. Turkey could earn significant amounts of foreign currency and reduce unemployment in the cities if it focused on the labour-intensive tourism sector provided it could establish tourist regions while preserving its coasts free from pollution. This depends on environmentally sound approaches, not only by potential investors but also by the public and private sectors at all levels. Thus a Secretariat of the Environment attached to the Office of the Prime Minister was established in 1978; it was upgraded to Ministry of the Environment in 1991. Like any industrialized country, Turkey passed environmental legislation covering all aspects of pollution from water to noise pollution, and a sound environmental management structure exists although it is not complete (theoretically capable of assuring monitoring and implementation). This development is rapidly eliminating other legal shortcomings and enabling the establishment of environmental organizations in provinces. A significant part of these regulations pertains to industrial activities. A majority of the laws which have operational importance in terms of environmental protection were adopted after 1980; this trend is in line with the general developments in the world. The oil crisis, in a sense, marked the end of the "Golden Age of Development" which followed the Second World War. Anti-development and neo-Malthusian movements, which started with discussions over notions like "zero growth rate" or "limits to development", initiated by the Club of Rome in the early 70s, became reality when the world economy actually entered into a stagnation period. However, growth was still necessary since the vicious circle of rapid population growth and poverty could not be broken. The report entitled "Our Common Future" drawn up in 1987, also known as "Brundtland Report", reflects attempts to set a tradeoff between growth and natural resources. It has, by initiating the notion of "sustainable development", attempt-

ed to soften the notion of "development at any cost". Many books and articles were written on sustainable development which soon became the official doctrine of the United Nations and many other organizations. In our view, three conditions formulated by economist Herman Daly define a concrete programme:

- I. The consumption rate of renewable resources should not exceed their rate of regeneration.
- II. The consumption rate of non-renewable resources should not exceed the rate at which sustainable renewable substitutes are developed.
- III. The rate of any kind of pollution should not exceed the assimilative capacity of the environment.

A near-perfect modern environmental legislation in Turkey may, in a sense, allow the realization of the sustainable development theory. However, to what extent has Turkey's development experience and prospective plans conformed or will conform to these three conditions? Let us first try to test these conditions by looking at energy consumption considered as the most important indicator of industrialization. The data show that the share of fossil fuels (coal & oil) in total energy consumption of Turkey rose to 82% in 1992 from 67% in 1970. Energy consumption trebled in 23 years. However, the increase of CO₂-type pollution sources within the overall amount in terms of percentage and absolute quantity should not be considered as a positive trend. Meanwhile, Turkey is drawing closer to its physical limits with regard to renewable energy resources, particularly in the field of hydro-electric power. The Atatürk dam and hydroelectric power station are in operation on the Euphrates River and with the bidding for the Birecik dam located near the Atatürk dam, almost all major dam projects will have been executed. Only "marginal" additions will be possible in the future.

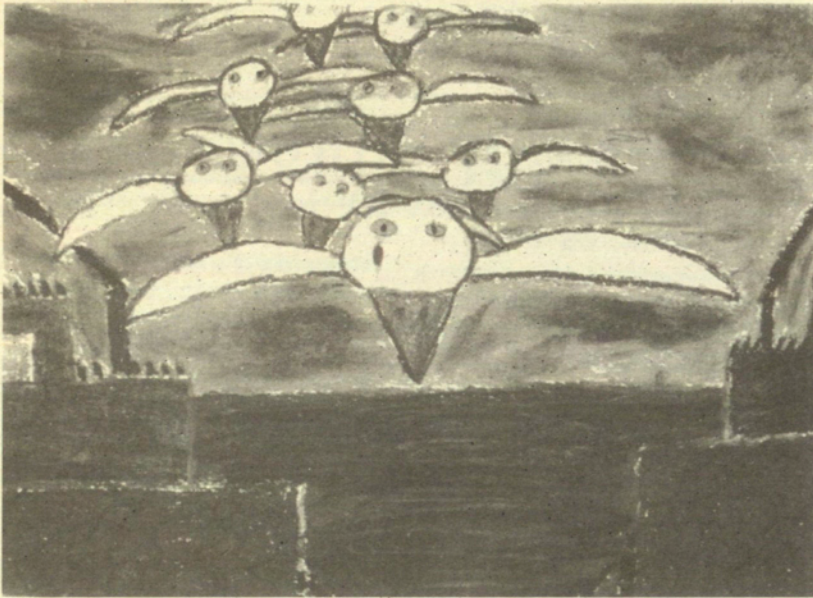
We can extract forecasts for the future from the "Energy and Environment" publication prepared by an independent team for the Blue Plan⁽⁷⁾. In 1990, Turkey had a 6 % share, 44 Mtep, primary energy consumption out of 694 Mtep total consumption for the Mediterranean countries. Turkey's share of fossil energy consumed was 7% or

41 Mtep, out of 560 Mtep for the Mediterranean overall. These figures are quite modest compared to its population and size. However, according to the Blue Plan forecast for the Mediterranean Basin in 2010, Turkey's share will double and reach 120 Mtep or 12% of a total consumption of primary energy expected to reach 988 Mtep, while its share of fossil energy will treble to reach 103 Mtep or 22% of the total. This forecast indicates that Turkey will become an important energy consumer and an important source of pollution. According to the Blue Plan hypothesis, Turkey will be more dependent on fossil fuel while other major consumers like France, Spain and Italy will use advanced technology to save fossil fuels. Naturally, Turkey which releases into the air 45 million tons of CO₂ (in the form of carbon) by consuming 44 Mtep of energy in 1990 and is responsible for 10% of the CO₂ pollution in the Mediterranean, is expected in 20 years to release the CO₂ which corresponds to 120 Mtep of energy consumption and thus contribute more to pollution.

The picture is not much brighter for cities. The urban-rural population balance depends on a mature industrial economy, that is, migration to cities should stop and urban population should adopt an urban mentality which would result in a decreased population growth rate. This should be possible after one or two generations and when per capita income reaches US\$ 5,000 - 8,000. Big cities in Turkey have only recently started to produce basic solutions to water and sewerage problems. Main collection networks, treatment and waste discharge systems are under construction in Istanbul, Ankara and Izmir. Actual demand when these systems have been completed cannot be predicted. It is virtually impossible to plan an "unplanned development". On the other hand, in Britain and France, main urban sewer systems built in the 19th century are still adequate. Subways and natural gas systems are being constructed or commissioned. Methane gas explosions in garbage dumps in major cities have become a common phenomenon since there are no incineration facilities and the solid waste disposal approach is based on the land-fill method. Re-



Environmental awareness among Turkish children



This drawing by 9-year old Omer Erol won an award in a competition organized by DHKD. The caption he gave is: "you are so right to cry, pretty birds!!"

cently, some municipalities have attempted to set-up garbage incineration plants. Environment in cities is not only polluted by consumed materials. In Istanbul pollution begins before consumption of critical resources like water. Scarce resources of drinking water become polluted and unsafe to drink before being distributed because there are slum areas (gecekondu)* and dumping sites around water reservoirs and natural lakes around the cities.

Air pollution levels arising from industrial activities, exhaust gases and heating in big cities exceed their critical limits, particularly in winter. We cannot enumerate all the statistical data relevant to environmental problems in cities but they are available in many publications⁽⁹⁾. The State Institute of Statistics (DIE) has also established an Environmental Statistics Department.

Despite this gloomy picture of cities, we have reasons to be optimistic. Ankara, which had the most dangerous air pollution problem ten years ago, not only in Turkey but in the world, has managed to reduce its pollution to standard limits by importing natural gas and quality coal. When the subway system is completed, exhaust gas pollution will also be reduced. Istanbul, though late, is using natural gas, building a subway and completing main sewer systems through World

* Literally "built in one night"

Bank credits. Although no significant achievement has been realized with regard to the protection of Izmir and Izmir Bay, some hazardous discharge has been stopped and new projects have been planned taking into account past failures. The Municipality of Istanbul has moved an old obsolete tanning complex, which was in the city and represented a major source of pollution, to a modern industrial area where new tanning technologies and treatment facilities are employed. The growth rate of tourism, though promising, has yet to match urban needs. The Mediterranean-Aegean-Marmara coasts and Cappadocia defined as tourist development regions, account for 4,040 hectares or 14.3% of the 28,250 hectares of total settlement areas. There are 9,200 small and major establishments and 550,000 beds in these regions. This figure does not even reach 20% of the total settlement areas in the Mugla and Antalya provinces. Tourist areas represent 18.9% of settlement areas in Antalya and 16.4% in Mugla. However, rural areas account for 54% in the coastal zone and the secondary settlement areas 31.7%, while tourist areas occupy the third place. Naturally, this figure will rise when the target of 1 million beds will have been attained in the year 2000, which in turn will result in increased pollution⁽⁹⁾. Yet, this level is far from being as dangerous for the environment as is the impact of urbanization. Besides, tourism is

following a more planned development under the guidance of the state. If infrastructure and density rules are not violated, these coasts may host a "self-sustaining" business, earning foreign currency and creating employment opportunities without causing significant pollution problems. Turkey has voluntarily started to pay the cost for industrialization and urbanization. This cost is met or should be met by levies and taxes paid by producers and consumers. Yet, the real cost should be in the form of higher productivity for Turkish industry or much greater total investment. Many technologies in Turkey will disappear as they become obsolete; advanced technologies and price competition will replace them. With the introduction of Japanese car manufacturing technology, new standards will force spare part manufacturers, who previously worked with obsolete workshop methods; to manufacture zero defect spare parts through advanced technologies on a larger scale. If we do not take into consideration the current pollution levels, an increase in investment and a lower birth rate could inaugurate an era of sustainable development in Turkey early in the 21st Century. Can we reclaim seas, coasts and agricultural lands polluted to date? Of course, some assets cannot be recovered. However, advanced technologies and large investments will contribute to improvement. This process includes sustainable development methods which will succeed on condition that Turkey's strategic choice is to establish a modern industry and urban infrastructure.

(1) David Morawtz, *Twenty-five years of economic development 1950-1975. A World Bank Publication, 1977, pp. 19-21.*

(2) *The World Bank, World Development Report 1993, World Development Indicators, Table 2.*

(3) *Ibid. Table 26.*

(4) *DPT, 1993 Annual Program, p. 22, Table 5.*

(5) *World Development of Istanbul Area and Low Cost Housing, the Turkish Social Science Association.*

(7) *Michel Grenon; Energie et Environnement en Méditerranée, Fascicule du Plan bleu no 7, Economica, Paris, 1993.*

(8) *OECD, les politiques de l'environnement en Turquie, Paris 1992.*

(9) *Data from the Turkish Ministry of Tourism.*



*THE TURKISH TOWNS: POORLY CONTROLLED
DEVELOPMENT AND FIRST CORRECTIVE MEASURES.*

PROBLEMS OF ISTANBUL ASSOCIATED WITH GROWTH AND ENVIRONMENTAL PRESSURES

by Oktay Ekinçi (*)

Under the pressure of massive immigration exceeding 400 thousand people per year, Istanbul is one of the fastest growing cities, not only in Turkey but in the world.

However, since this growth takes place through illegal construction created by thousands of people in regions with no planning or infrastructure, it leads to a rapid exhaustion and destruction of urban values.

On the other hand, Istanbul has the advantage of being one of the most important historic cities in the world, with an accumulation of civilizations through 2600 years of history and rich cultural values belonging to the Roman, Byzantine and Ottoman periods. However, this advantage too is being rapidly destroyed because of the intense building taking place which ignores the historic infrastructure of the city and lacks a general master plan which would ensure the preservation of the city's historical character. Istanbul is unique in the world in its environmental richness based on the special geography of the city where two continents meet; that too is being threatened for the very same reasons. Its special environmental and cultural features, due to the fact that it is a "coastal city", are lost because of unplanned building, while the agricultural lands and woodlands east, west and north of the city, as well as on both sides of the Bosphorus are turning into anarchic settlement zones for the same reason. The streams, lakes and dams from which drinking water is obtained, as well as their watersheds, suffer from the impact of pollution

(*) Head of the Istanbul Metropolitan Branch of the Chamber of Architects



Illegal housing around Istanbul (DHKD archives)

created by the same processes. The following reasons explain the urgency of the situation and illustrate why the problems become complex:

1. Istanbul is a city with "very limited" space to grow because of all the natural, cultural and historic monuments in the metropolitan area and the very limited areas suitable for new housing developments. To explain further:

a) The historic peninsula, the centre of a settlement with 2600 years of history and the Galata-Pera region with a similar historic background are the most important commercial, cultural and business areas. There is no more land available for constructing new buildings in this historic part of town which encompasses the northern and southern parts of the Golden Horn. Buildings constructed in these zones over the last 40-50 years have damaged the historic character of the city and this is the most serious problem in trying to restore its cultural identity.

b) The Kadiköy coast, a pre-Byza-

ntine settlement which dates back to the time of the first colonies established there by the Phoenicians, is another vast area which is not suitable for modern construction. In this area, historic villas, the most significant pieces of Ottoman civilian architecture in the 19th Century, were also ruined by intensive construction over the last 30 years. Today, a concerted effort is being made to protect the magnificent cultural heritage. However, it is not possible to find an area suitable for new settlements in the region between Kadiköy and Pendik.

c) Bosphorus, the most precious area which is a bridge between the central part of the city and the northern Black Sea coast, embraces a large area where new constructions are "definitely" prohibited by a SIT decision issued in 1970, along with plans and special laws adopted in 1980 in order to protect it. Though prohibition to construct new buildings could not prevent the construction of many "illegal constructions" on the hillsides of both shores of the Bosphorus, the "protection of the



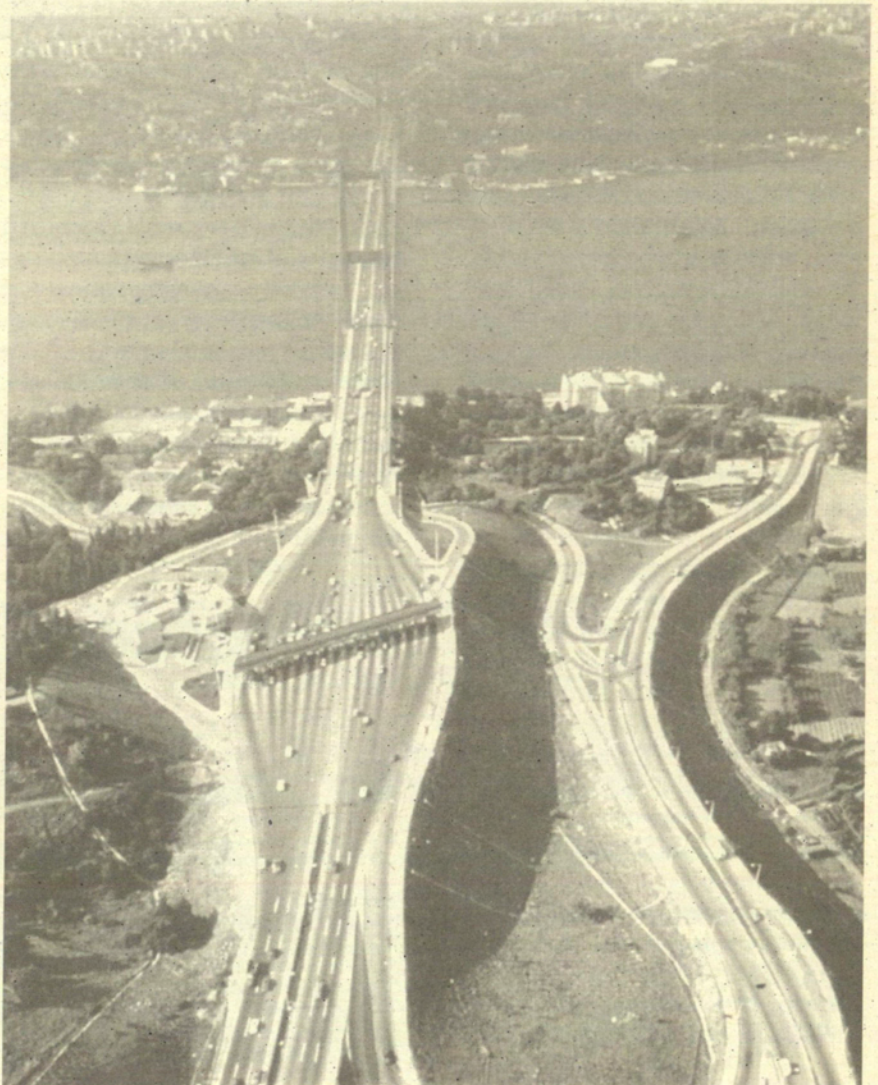
Bosphorus together with its natural and historical identity" is one of the preconditions for all physical planning related to Istanbul's growth.

d) In addition to these three regions, the northern parts of Istanbul on both continents (Asia and Europe) extending from the centre of town to the Black Sea coasts form a wide green belt where construction should not be allowed because of environmental considerations. This belt, which is the "only chance" for Istanbul in terms of the ecological balance of the city, the climatic conditions and recreational activities, contains fertile agricultural lands and rich forests with water resources and basins. These regions, defined as "the green belt of the whole Metropolitan area which must be protected" in the city master plan drawn up in the early 80s, encompass an area which should definitely not be used for new buildings and land development. As explained above, Istanbul is in fact a city which should not "grow" because of its urban settlement and rich natural and historical sites. In other words, the principle of conserving environmental values imposes itself as a vital precondition in all physical planning decisions including city planning, applied land development and building designs, if we want to preserve a universal heritage which must be protected on behalf of humanity. Since this precondition was not taken into account in urbanization and city planning, particularly after the 50s, Istanbul, while growing rapidly and continuously both horizontally and vertically, is losing almost all of its urban values and its urban identity is diminishing.

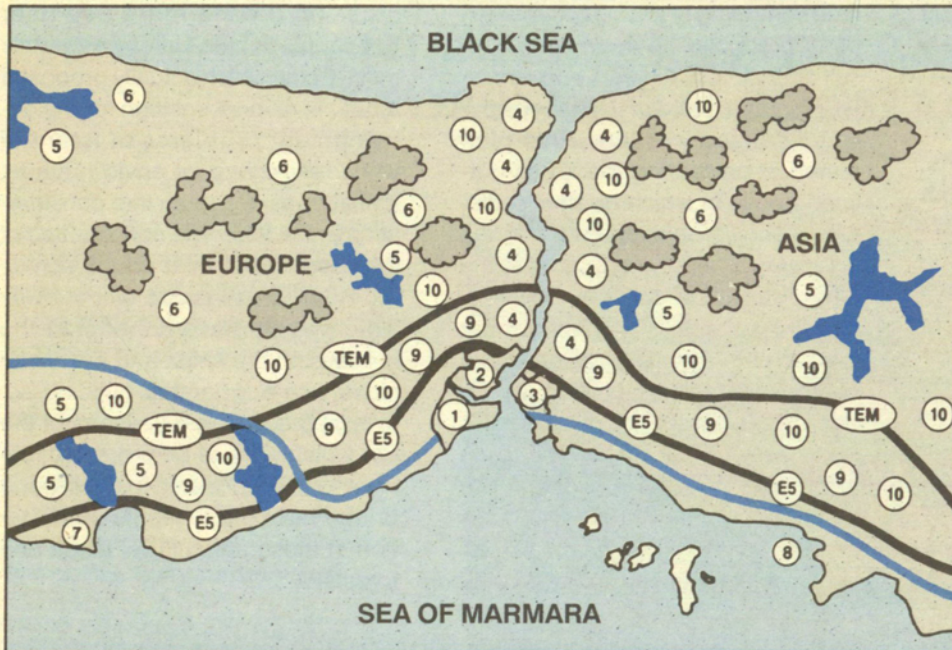
2. Failure to implement the city's master plan, which was not taken into account in decisions with regard to city planning, is the second most important reason for Istanbul's current problems. The metropolitan master plan studies, initiated in the 60s and carried out by a powerful official bu-

reau consisting of a large group of experts, produced the first important result after almost 15 years and a master plan at a scale of 1/50 thousand was finalized in 1980. This plan aimed at protecting the areas outlined above in which no new settlements should be built and it defined an east-west axis lying parallel to the Marmara Sea as the new development hinterland for Istanbul. Under this plan the Pendik-Buyukçekmece coastal belt and adjacent northern areas are the only development zones of the metropolitan area. The existing east-west railway network in the same belt will form the basic mass transportation means for the 100km linear settlement when the subway

crossing the Marmara Sea near Bosphorus is built. Unfortunately this master plan which actually proposed the most rational solution for the development problems of Istanbul while respecting its environmental identity was not taken into consideration in the 80s. The construction of the second and third bridge across the Bosphorus instead of a subway which would have connected the railways on the Asian and European sides, has accelerated building activity in the northern sections of the city which were to be protected; access roads connected to the second bridge have led to illegal urbanization in these agricultural lands and forests.



The first bridge over the Bosphorus



1. Historic peninsula (Byzantine centre)
2. Galata-Beyoglu (Pera)
3. Kadiköy
4. Bosphorus
5. Drinking water basin
6. Agricultural and forest land
7. Buyukçekmece
8. Pendik
9. Urban settlement zone
- (E5) National Highway
- (TEM) Highway
- Railway
10. Illegal construction areas.

Similarly, the construction of new settlements near water basins, the Bosphorus and the Black Sea coast against the recommendations of the master plan prevented Istanbul's linear growth and started a development process around historic areas, the Bosphorus and the Golden Horn, mostly with tall buildings which did not take into consideration the identity, the character and the infrastructure of the city. Istanbul occupies a very special site where Asia and Europe come together. This geographic location of the city has ensured the coexistence of different cultures which make up this unique mosaic with its very special local identity. This local identity created by Christian and Muslim cultures in harmony and interaction, which is very rare in the world, has a universal value in terms of the dynamics of peaceful coexistence which lasted for centuries, making Istanbul one of the most glorious centres of civilization. Today, one can find in Istanbul many archaeological and architectural monuments from the Roman and Byzantine eras, together with Greek, Jewish, Armenian and Ottoman architectural examples, religious and

non religious. Clear examples of the Genoese culture can be seen in the Galata and Beyoglu (Pera) quarters which are strikingly similar to other European Mediterranean cities. Decorated with the most interesting examples of the Ottoman architectural tradition respecting nature and mankind, the Bosphorus is also enriched by the settlements of the Greek and Armenian communities, and the coastal villages which have their own unique character and house construction style. The mosaic of cultures is an integral part of the physical landscape and forests

which make up a coast of great beauty. Thus, the development of such a city, while protecting its universal identity, is the most serious "growth problem". On the eve of the 21st Century, since social and economic development make it imperative for Istanbul to grow, the most important task is to find a solution to the conflict between conservation and urbanization and at the same time respect the environment. The first important measure to be taken therefore is obviously to reactivate the recommendations of the master plan which was neglected after the 80s.



Illegal discharge somewhere in Istanbul (DHKD archives)



THE REHABILITATION PROJECT OF THE GOLDEN HORN IN ISTANBUL

The Golden Horn is an inlet of the Marmara Sea, 7.5 km long and 1 km wide, where the Bosphorus Straits begin, which separates Europe from Asia and which penetrates the European coast becoming narrower as it goes in. Its watershed is home to about 4 million people. The south-west bank of the Golden Horn encompasses Eminönü, the old part of Istanbul where one finds most of the famous mosques, Santa-Sophia, the Topkapi Palace and the Large Bazaar; the north-east bank encompasses Beyoğlu, the modern part of town with the new hotels, Taksim square and the shopping district; there are also some Genoese vestiges such as the Galata Tower. Therefore, the Golden Horn is at the same time the cultural, tourist and trade centre of Istanbul, a large commercial harbour and a strategic location. With the anarchic development of the city, referred to by Oktay Ekinci in the previous article, the Golden Horn had become an unhealthy and overcrowded area, with ugly buildings tarnishing the more beautiful historic sites, while pollution reached extremely dangerous record levels (in 1980, 100,000 m³ of untreated domestic sewage and 200,000 tons of liquid industrial effluent entered the Golden Horn each day). The rehabilitation project of the Golden Horn was launched in 1984 by the Municipality of Istanbul, to reduce discharge and to reshape the landscape. In two years, most of the industrial plants and port activities were moved away from the coast and 400,000 people that used to live in substandard dwellings were relocated to healthier districts outside the area. A large part of the area that was cleared was made into green spaces. The Golden Horn was dredged and 450,000 m³ of sediment was taken away and dumped at the deepest site of the Marmara Sea. Even though pollution has been drastically curtailed, the waters of the Golden Horn still receive untreated effluent from shipyards and textile plants that were not moved. Furthermore, the global implementation of the project has been slowed down or compromised by the fact that contradictory policies of environmental protection have been followed over time by the Municipality of Istanbul. The rehabilitation of the Golden Horn, in order to be complete, must be integrated in a much larger context of projects concerning the 15 municipalities of Istanbul, which would include the construction of a network of sewage collectors and several treatment plants. The total cost of the rehabilitation of the Golden Horn was estimated, in 1987, at US\$ 300 million; projects are funded by national and municipal budgets and by international loans and grants (particularly from the World Bank).

ATMOSPHERIC POLLUTION IN ANKARA AND THE CASE OF "BURSA-THE-GREEN"

Ankara was nothing but a sleepy market town of 30,000 people in the middle of the Anatolian steppe, when fate changed it in 1923, through the will of Kemal Atatürk, to make it the capital and the symbol of modern Turkey. Over decades, the city became a vast construction site, not only for buildings and monuments, but also for parks and public spaces. According to the 1985 census, the city had 2,750,000 inhabitants. For many decades, the rapid urban growth resulted in high atmospheric levels of particle matter and sulphur dioxide, due to inadequate heating infrastructures and local meteorological conditions (fog). The situation was thus one of the world's worst. Confronted with this, the Ankara Province Public Health Board specified the conditions for the use of domestic heating systems, set the objectives of ambient concentrations and the alert levels beyond which pre-defined measures must be taken, and legislated regulations concerning the types of fuels (light fuels with low sulphur content) that could be distributed. For its part, the Municipality of Ankara had in mid-1991 converted the heating systems of 50,000 homes and buildings to natural gas, 80% of which were in the most polluted areas. High quality coal was imported from South Africa and

the former Soviet Union and it is prohibited to sell, store, distribute and/or use solid fuels other than those imported by the Municipality. Complementary projects focus on the reduction of pollution by car exhaust gases (some buses already operate on natural gas). The first 15 km of the underground currently under construction will be finished by 1995, which will enable 500,000 people to travel on it every day and relieve the congestion of mass transport (bus and minibus).

The Ankara light rail will soon cover 8.5 km and will transport 300,000 passengers each day. Moreover, the replanting scheme for Ankara (launched in 1990) calls for 500,000 trees to be planted each year.

The air pollution problems of Ankara are found to a greater or lesser degree in most large Turkish cities and similar solutions have been adopted. During the winter of 1989-90, 11 cities went above the limit value of 250g/m³ of sulphur dioxide (on a 6-month average).

The case of **Bursa** (population 1 million), to the south-east of the Marmara Sea, is characteristic in this respect. For centuries it has been known as a good place to live and as the "garden-city" of the Orient ("Yesir Bursa" or "Bursa-the-Green"), sheltering in the shadow of Mont Uludag a prestigious

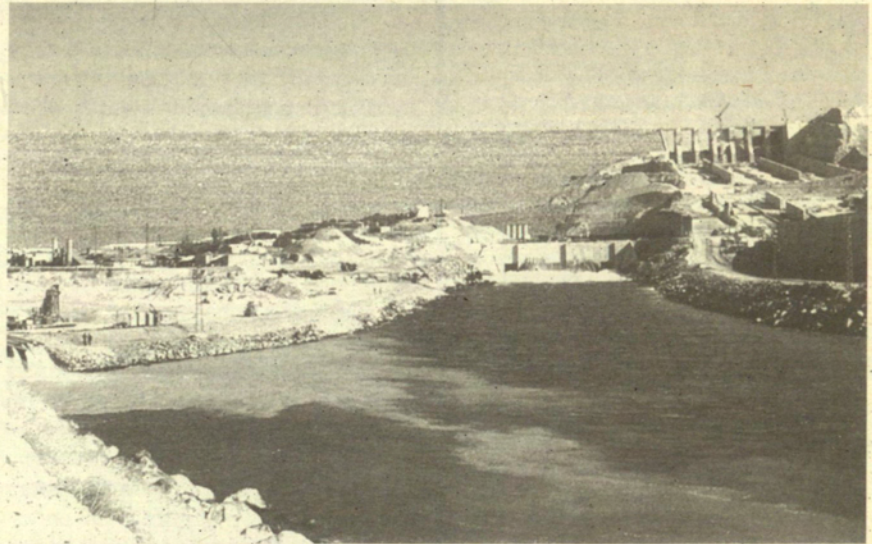


The Bursa historic centre



WATER RESOURCES MANAGEMENT: THE GREAT ANATOLIAN PROJECT

cultural heritage dating back to the time when it was the first capital of the Ottoman Empire (1326-1413). Traditional activities have been raising silkworms and the weaving of precious cloths. In the 60s, several agro-industrial and automotive plants were built (assembly and spare parts) and this changed the character of the city profoundly, even though most of these activities centered in an industrial zone outside the town, actually the first such zone to be planned in Turkey. Bursa therefore, was not able to avoid the demographic boom and rapid urban growth, and thus the resulting pollution problems, particularly atmospheric pollution mostly from heating in winter. Here too, the Municipality set strict regulations for heating with the distribution of high quality imported coal, launched a project for the use of natural gas and started a tree replanting campaign, involving a great number of inhabitants, which extended the green areas by one million m² (30,000 trees were planted). However, the Orhaneli power plant was subsequently put into operation and this runs the risk of increasing atmospheric pollution; there is a dispute now between the local authorities and the central government because the former are demanding the installation of a desulphurization system. Another dispute between the state and the local authorities, which is common in Turkey, is over the industries that have plants locally but with headquarters in Istanbul and which pay taxes and levies to the latter, without the former being able to deduct its part which might be used for environmental protection projects. There is a project for an underground and light rail for Bursa, to be operational around the year 2000; this would decrease automobile traffic in the city. The Water Services Board has launched projects for the treatment of sewage and the extension of sewerage networks (financed in part with loans on the basis of a World Bank-Japan Agreement). Finally, the rehabilitation and restoration of the town centre has already brought back to the cultural and architectural heritage (Ulu and Yesil mosques, Yesil mausoleum) its centuries-long aura of peace and spirituality.



The Atatürk Dam

South-eastern Anatolia, near the Syrian border, is a large construction area headed for an economic revolution. Abandoned by the central government for a long time, this agricultural region will benefit from the vast irrigation possibilities of the Atatürk dam: this is the Great Anatolian Project affecting 73,000 km² or 9.5% of the total area of Turkey, equalling the area of Belgium and the Netherlands combined.

The Great Anatolian Project (GAP) aims at developing the water resources of the watershed of the Euphrates and the Tigris, two rivers collecting 30% of the country's hydrographic system before they enter Iraq and Syria respectively. The GAP comprises 13 large scale irrigation and energy production projects, among them the construction of 14 dams and 11 hydroelectric power plants in the Euphrates watershed and 8 dams and 6 power plants in the Tigris watershed. The Atatürk dam, on the Euphrates, is one of the largest rock-filled dams in the world; it was completed in 1990 and used for irrigation and the production of energy (installed power of 1.4 billion kWh and annual potential energy 8.9 billion kWh); there is an artificial lake of 817 km² with total storage capacity of 48.5 billion m³. At the city of Urfa, SE of the dam, a twin tunnel which is 26 km long will soon transfer the water from the lake to the plain of Harran. The objective is to irrigate 1.7 million hectares. All of the projects are scheduled for completion between 2010 and 2015 at a total cost of US\$ 35 billion. In

time they should create 3 million jobs and new and impressive infrastructure projects (one of them a six-lane highway linking Adana with Diyarbakir). The traditional crops of the area were dry (cereals, lentils, olives): the irrigation which will start gradually in 1994 will allow diversification of crops with the introduction of fruits and vegetables. Such a project obviously has serious environmental repercussions and will affect the socio-economic and political context of the whole region. At environmental level, the construction of dams brings with it the risk that non-cultivated slopes and the region's poor vegetation, drained of the water upstream, if not protected, will suffer erosion which will increase the load of sediments transported into the dams. The GAP is therefore accompanied by a large scale programme - already started - of reforestation and soil conservation measures. One third of the GAP area, or 26,000 km² must be planted with trees. But this remodelling of the region through irrigation and reforestation will bring with it conflicts in land-use since the areas affected have traditionally been used for grazing. The implementation of the project will mean therefore that the state will have to mediate between the conflicting interests of foresters, animal growers and old and new farmers, as well as to ensure that there is a gradual and careful integrated management of the watersheds through coordinated management of the various sectors involved and the taking into account of the environmental factors as the consequences - which cannot all be predicted as yet - will gradually appear.

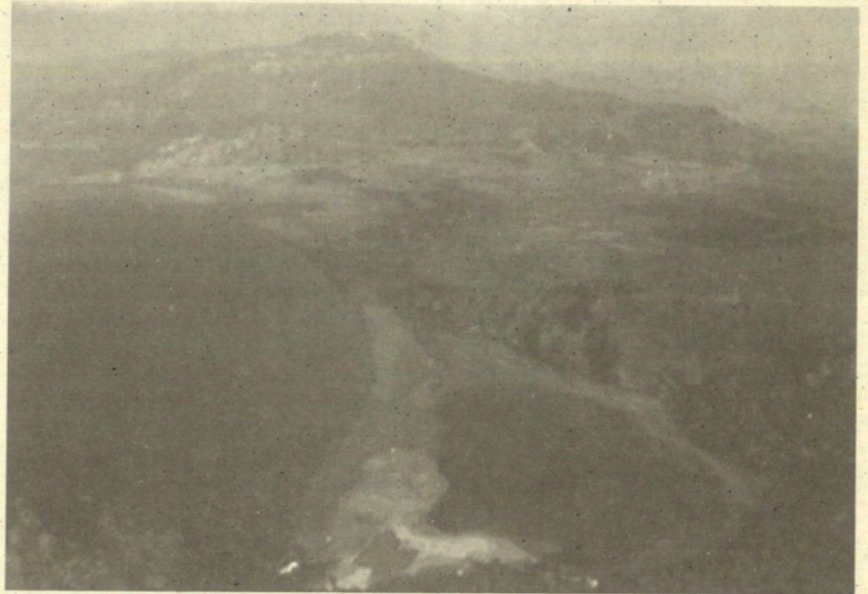


ACTIONS CARRIED OUT AT DALYAN BY THE SOCIETY FOR THE PROTECTION OF NATURE OF TURKEY: OF TURTLES AND MEN

"Eastern Mediterranean Marine Turtles" is a joint WWF (World Wildlife Fund for Nature) and DHKD (Society for the Protection of Nature in Turkey) project, initiated and undertaken by the coastal management section of DHKD.

This project, launched in 1986 and becoming full-fledged in 1989, is special in several ways: it is the first time that the marine turtles threatened along the Turkish coast were brought to the attention of the public and second, it marks the first major success of environmental concerns over short-term economic benefits.

What was happening on the Dalyan beach in the southern coast of the country when the project was launched? This 4 km long beach which had been, until quite recently, miraculously preserved from human aggression is part of a larger ecosystem of the lagoon type (the Köycegiz lagoon). Of course, the *Caretta caretta* turtles still come here to nest as they have done for the last 95 million years, but their numbers are declining steadily. Furthermore, building companies want to build a tourist complex here which would destroy a rare ecosystem. This story is unfortunately quite common and has been occurring along the Mediterranean coast for the past 30 years. However, the Turkish-German joint building venture faces strong opposition from environmentalists. Both in Turkey and abroad there are active campaigns which finally convince the Turkish government to stop the project and nature conservation wins for the first time in Turkey. Today, the Dalyan-Köycegiz area is declared a specially protected area under the auspices of MAP/UNEP, a demarkation line made of posts on the beach indicates the highest nesting density zone; in the first years of the implementation of the project, DHKD volunteers invited tourists to respect the area and convinced them to stay away at night during the nesting and hatching season (now this function has been taken over by the Authority for the Protection of Special Areas). However, not all problems have been solved: the foundations for the tourist complex have not been removed and could serve as parking, some beach installations have been developed, the beach remains open to the free circulation of tourists and thus depends on their respect or lack thereof until it is declared a natural reserve, pleasure craft disrupts the



Turtle nesting beach at Dalyan (DHKD archives)

lagoon ecosystem, etc. The current protection rate for the Dalyan site is estimated at 70%. The situation at the other 7 sites, also declared specially protected areas, is more precarious but the public awareness raised through the WWF/DHKD project has encouraged the local groups to try and correct the most blatant problems.

In the meantime, a very large WWF study along the Mediterranean coast, in cooperation with Turkish universities and with the coordination of DHKD, identified 17 important nesting sites of marine turtles and the development trends for their population. The results of this study formed the basis for the project mentioned above, pressures on public authorities led to the creation of a national commission for marine turtles, the members of which represent various ministries, universities, local authorities and NGOs; the commission visits nesting sites and has endorsed the recommendation of the WWF study to combat the most serious threats. At the same time, the public awareness campaign on the fate of the marine turtles, which promoted the whole conservation of nature effort in Turkey, has also given impetus to the research on the biology of the species. In a joint project, two Turkish Universities are studying nesting behaviour, reproduction yields, population sizes at Dalyan and Patasa. Another study is being carried out at Kazanlı, one of the two main nesting sites of the green turtle (*Chelonia mydas*) in the

Mediterranean, and the DHKD and a Dutch university are studying predation and proposed measures to reduce it. The section "Coast management" (CMS) of DHKD organized hatchling rescue work in Kazanlı in the summer of 1993, where volunteers patrolled the beach to guide disoriented hatchlings to the sea.

Finally, since 1989, CMS/DHKD has opened an information bureau in Dalyan. Brochures, posters and videos are at the disposal of visitors to inform and sensitize them. The volunteer students managing the bureau during the tourist season thus participate in the conservation efforts and quite a few of them continue to work at DHKD Headquarters in Istanbul. The DHKD also runs an educational programme for elementary school children in the areas concerned. In the longer term, CMS/DHKD wants to launch, through awareness campaigns and lobbying, a policy in Turkey compatible with coastal management programmes. It is only through the respect of the natural and cultural environment which is the best future "investment" for tourism, that the protection of the most threatened areas and endangered species will be safeguarded.

(For more information contact: DHKD, Society for the Protection of Nature, A. Aygun Cd. Basak Sk.50/1, P.K. 18, Bebek, 80810 Istanbul, Turkey, tel. (90) (1) 2790139/40, fax (90) (1) 2795544)



THE WETLANDS OF TURKEY

The wetlands of Turkey, a country surrounded on three sides by seas, exhibit different characteristics depending on climate, topography, elevation, and soil composition and permeability. These wetlands can be broadly divided into two categories which are significantly different in terms of climate: those near the coast and those on the Anatolian Plateau. The wetlands near the coast are much more adequate as shelters for waterfowl, for nutrition and protection, especially during the cold winter months when lakes of the Anatolian Plateau freeze.

Turkey has the richest wetlands in the Middle East and Europe - with the exception of the Commonwealth of Independent States. There are about 250 wetlands in Turkey, of which 75% have a surface area of more than 100 hectares, and they represent a total surface area exceeding one million hectares. According to the studies conducted to date, it has been established that 19 of them are Class A and 45 Class B wetlands in terms of international classification.



*Wetlands near Izmir
(Tansu Gürpınar)*

Turkey, due to its geographical position, is a key stop on the two migration routes over Europe, Africa and Asia. For this reason, the existence of the wetlands in this country is more important to the waterfowl than it is in any other country, as their survival depends on them. That is also why the wetlands of Turkey and their importance is recognized and closely followed by the international scientific community. The most serious threat to wetlands is their drying up for various reasons. In the past, the functions of the wetlands in preserving the natural equilibrium and biological diversity, their biological output and their benefits to society were not adequately investigated. Thus, for a long time, they were viewed as breeding places for mosquitos, and consequently responsible for the transmission of diseases and qualified as swamps lacking any value whatsoever. Thus, to eradicate malaria, numerous swamps, reed-beds and shallow

lakes were drained on the basis of a law adopted for this purpose. Swamps were also drained for the purpose of gaining agricultural land and the lakes of Gavur, Sugla, Kestel, Simav, Efteni and Ladik, extremely valuable wetlands known worldwide, were drained together with the reed-beds of Aynasaz and Karasay. These interventions disrupted the ecological balance. However, the agricultural land gained by the draining of some 200,000 hectares of wetlands failed to produce the desired results and in many places soil has ceased to be fertile because of phenomena such as salination, the burning of peat-bogs and wind erosion. Furthermore, these interventions have disrupted local water regimes and have brought about climatic changes, coupled with various irreversible consequences such as the extinction of numerous species. Another important problem that wetlands in Turkey face is pollution. As a result of industrialization and urbanization, many wetlands have become pools into which both industrial and municipal wastes are discharged. Furthermore, with the widespread and irrational use of chemical fertilizers and pesticides in agriculture, pollution has taken on threatening dimensions: Other threats to the wetlands in Turkey are associated with illegal hunting and egg poaching, the disturbing of nests by grazing animals in bird breeding areas, excessive fishing and the building of tourist complexes and secondary housing. In Turkey there are no specific laws concerning the wetlands, only laws and regulations indirectly related to this matter, such as legislation on hunting, the draining of swamps and the utilization of the land thus recuperated, forests, pesticides, the environment, national parks, as well as regulations for the combating of water pollution. So as to remedy this situation, a circular from the Prime Minister and one from the Ministry of the Environment, dated 11 January and 19 February 1993 respectively, were published with a view to taking urgent protection measures and preventing practices which are detrimental to the wetlands. Turkey has not yet ratified the Ramsar Convention, which envisages international cooperation for the protection of wetlands, but the Ministry of the Environment is trying to accelerate this procedure. To this end, five wetlands (the lakes of Seyte, Manyas and Burdur, the reed-bed of Sultan, and the Giksu delta) have been chosen, in conformity with the opinion of competent organizations, to be included in the list of the Convention and the corresponding bill of law has been submitted to Parliament.

The coastal areas have always been for Turkey, through the various civilizations that have succeeded one another, important areas of economic activity; their natural resources and beauty, the mildness of their climate, their opening to the blue sea have always been an irresistible magnet for the populations of the less privileged areas of central and eastern Anatolia. For the past thirty years, the growing number and further development of activities established along the coast have had an impact on the marine environment, especially when the sea is semi-enclosed and not very deep, which limits water exchanges and the dispersion of discharged pollutants, as in the case of bays. Izmit Bay, on the Marmara sea, presents the most serious of such cases. It is the home of about 100 industries (among which one of the largest paper manufacturing plants in the Mediterranean). Next on the list are the bays of Izmir, Adana-Mersin and Iskenderun. That is why the Turkish State and the local authorities have adopted an integrated planning and management approach for the coastal areas. The Mediterranean Action Plan promotes this new concept of development - which requires a change in mentality - by acting as a catalyst for studies and actions concerning two of the critical areas mentioned above: the Bay of Izmir for which all MAP components have been mobilized and the Bay of Iskenderun which is more in the purview of the Blue Plan.

The Bay of Izmir: **The Coastal Area Management** **Programme MAP/UNEP**

Following a pilot project in 1987, the Bay of Izmir was officially included in the Coastal Areas Management Programme (CAMPs) for the 1988-1989 MAP activities on a decision taken by the Fifth Ordinary Meeting of the Contracting Parties in 1987. Preliminary studies and assessments were launched with local experts playing the central role by forming the nucleus of each task team, while MAP/UNEP experts acted in an advisory capacity. The official agreement concerning the Bay of Izmir CAMP was signed in 1990, between MAP/UNEP and the Turkish Ministry of the Environment. The programme was finalized at a meet-



COASTAL AREAS MANAGEMENT PROGRAMME

ing held in Izmir, 29-30 September 1993, to assess activities undertaken and the results obtained. This CAMP concludes officially at the end of 1993, but a follow-up project is assured on the basis of a recommendation adopted in Antalya in October 1993.

Several factors explain the selection of the Bay of Izmir. Here too the demographic boom, urbanization and industrialization have begun strangling the bay in the last thirty years. The city of Izmir lies on the bay and spreads over most of its coastline. Between 1965 and 1988, the population grew by 30,000 to 80,000 people each year, so that in 1990 the Greater Izmir Area had 1.75 million inhabitants. Predictions for 2025 are that the population of the city will reach about 4.5 million. It is a lively, dynamic city, first commercial centre of the country, second largest harbour after Istanbul, all of which is reflected in its annual International Fair held each summer. Approximately 6,000 businesses in Izmir (there were only 1,300 in 1986) account for 10% of manufacturing production and 15% of Turkish exports, especially leather, textiles, paints, varnishes and agro-foods. However, the hinterland with its fertile soil gives another aspect to this protean city by contributing 15% of the national agricultural production. Finally, Izmir is one of the main tourist centres, not so much for its own sake, but as a base from which to explore the famous archaeological sites that are located all along the Aegean coast. Due to the combination of all these factors, the pollution of the bay, the air and the land has become very acute. The colours, the smells, the dangers and the toxicity are all elements that led to the selection of the Bay of Izmir for a coastal area management programme. The municipality has initiated several rehabilitation programmes supported by international financial and technical organizations. The first sewerage system for the city of Izmir dates back to 1969, but the construction of pumping stations and the collection system started in 1983. As for the treatment station, which will serve the needs of 2.3 million people when it is operational, its construction, envisaged 15 years ago, was delayed by a series of technical revisions to the project. Concerning industrial pollution, the local authorities launched a vigorous campaign in 1986 to dissuade the polluting industries from dumping untreated effluent into the bay. Effluent from approximately 450 plants is analyzed and classified on the basis of contamination levels. Violation of

norms incurs penalties which can include even the closing down of the offending plant. The municipality, however, has also used financial incentives to encourage reduction of pollution as well as aids and incentives for those companies that are willing to relocate away from areas of the city where they endanger public health: in five years, some 500 industries have agreed to relocate.

29-30 October 1993: Presentation in Izmir of the CAMP results

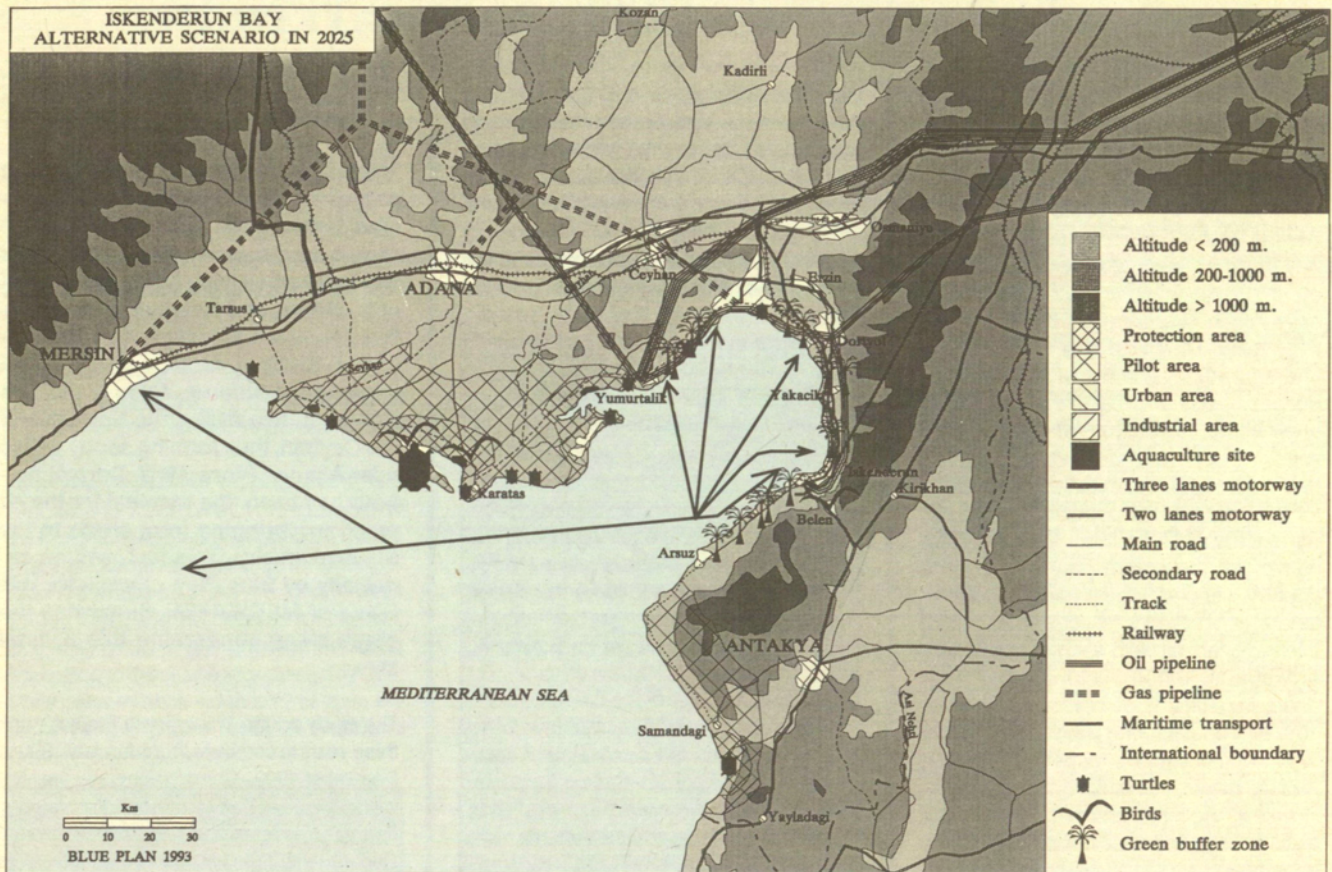
During a meeting organized in Izmir by the Turkish Ministry of the Environment and the Metropolitan Municipality of Izmir, the results of the relevant CAMP (a six year collaborative effort between MAP and the Turkish authorities) were presented to local, national and international officials (among them: Mr. R. Akçali, Turkish Minister of the Environment, Mr. K. Aktas, Governor of the Province of Izmir, Mr. Y. Cakmur, Mayor of Izmir, the representatives of six other ministries, several municipalities (including Istanbul, Izmit and Iskenderun), and various NGOs, universities and institutions). Mr. L. Jetic, MAP Deputy Coordinator, reviewed the fundamental concept, the objectives and activities of the various CAMPs in progress, while Mr. I. Trumbic, PAP/RAC Assistant Director, listed the main results of the Izmir CAMP. In their interventions, the Turkish officials stressed the fact that the Integrated Management Study and the GIS training programme had built or reinforced local capabilities; that in the future institutional arrangements should be made in order to avoid overlap or conflicts among the various administrations involved in coastal management; that studies that could not be completed should be continued by converting the CAMP into a national Turkish project; that the experience gained through this CAMP should be used for similar projects in other coastal areas of the country as well as for Turkey as a whole and finally that to this end steps should be taken to obtain financing from the World Bank and other lending institutions. At the conclusion of the meeting, both the Turkish side and MAP expressed the wish that cooperation would continue through the follow-up programme, in accordance with a recommendation formulated at the Eighth Ordinary Meeting in Antalya, two weeks before.

The Iskenderun Project: the Blue Plan contribution

The bay of Iskenderun, in the eastern part of the Mediterranean Basin, situated between the Adana plain and the Syrian border, receives the effluent of two large cities lying a little to the back of it - Adana and Antakya; their industrial zones are linked to other industrial and harbour centres on the coast (Dortyöl, Iskenderun, Yakacik, etc.), as well as to two rivers, the Seyhan and the Ceyhan, thus forming sandy deltas near Adana. Since 1969, Dortyöl harbour has been the terminal for the oil pipeline bringing Iraqi crude to the coast of the Mediterranean. This text, written especially by Blue Plan officials for this issue of MEDWAVES, illustrates the steps taken concerning this coastal area.

The study on the "Iskenderun Project" took three years to complete, from January 1990 to December 1992. Commissioned by the Ministry of the Environment of Turkey, it was carried out by a team from the Political Science Department of the University of Ankara, with the assistance of the Blue Plan. The objective of the study was to propose a model for environmental management of the Iskenderun Bay in the framework of Development/Environment on the basis of systemic and prospective analysis. The specific task of the Blue Plan was to provide methodological assistance to the Turkish team. This assistance took shape during joint meetings of the two teams (Blue Plan and Turkish team) in Sophia Antipolis and during missions of Blue Plan experts to Ankara and Iskenderun through synthesis reports, methodological notes and a series of maps and diagrams illustrating the objectives, the problems and the results.

The study was carried out in three phases; the first concentrated on the comprehension of the system, the second on prospective proper of the Iskenderun Bay and the third on the presentation and discussion of the results. During the first phase, the system was analyzed in order to bring to light the constraints, the trends and the processes; several tools were proposed and tested: primary mapping, structural matrix, matrix of social accountability, analysis of the involvement of the various actors. The primary mapping is a schematic representation of the elements of the system and their relationships; it is the first modelling process of the area under study by organizing



the information that is still incomplete. Applied to the Iskenderun Bay, the mapping illustrates the various actors, the interlinking of activities on the coastal space, the importance of the city and the hypertrophy of the function "Transports". The structural analysis helps to identify and describe existing relationships between the various elements that make up the system, through a double entry matrix. In the case of Iskenderun Bay, the difficulties in the implementation of the exercise (which would require a multidisciplinary team for a long period of time) led us simply to draw up a list of variables. There are 66 variables which describe the Iskenderun Bay according to 11 sub-systems: nature, population and society, economy and society, agriculture, industry (including handicrafts and agribusiness), energy, tourism, transport, construction and public works, pollution and wastes, political/administrative systems. A social accounting matrix was devised in order to identify the main links between the Iskenderun region and the other regions of Turkey or the areas outside. This matrix takes into account production activities, payment factors, transfers to main economic actors and finally, the consumption of these actors. It is a matrix presentation of the national accounting systems of the United Nations. One of its orig-

inal characteristics is that it can process social factors by selecting specific classifications for the first four categories. Households can therefore be classified by income, to highlight the poorest classes. There is also a choice between two (or more) business categories in each production category, to reveal the smaller firms, or better yet, those firms where production is low in comparison with modern activities. Another original feature would be to integrate sub-matrices in physical terms (tons of pollutants) or in population levels (active population), into the system in the form of derived matrices.

In order to carry out an analysis of the game of the actors, one can draw up a "Strategy of actors" table where the boxes in the diagonal line are used to create a three-point "identification chart of the actor" (objective, issues, means) and where other boxes store data concerning the means by which each actor can impact upon each of the others in order to reach his objectives. Thus, alliances, conflicts and neutralities can be identified. "Heritage Audit", another available means of analysis is based on the active participation of the actors considered as experts in their field. This involves asking the opinion of pre-selected people, during semi-direct encounters and according to a pre-determined grid.

When this method was used for the Iskenderun Project, 43 such encounters occurred in the region under study and 7 in Ankara. The results improved the understanding of the actors' motives, as well as their differences of opinion or convergence of interest. The second phase was devoted to the prospective of the Iskenderun Bay itself. The Blue Plan contributed to the elaboration of hypotheses for two scenarios (one trend and one alternative) for the 2025 horizon. The variables are the same as those selected for the Blue Plan's global Mediterranean scenarios, i.e. international context, population, national development strategy, space management and protection of the environment. At this stage, the main task was to illustrate results by means of maps and drawings (mainly involving population, urban and industrial development, transportation and bay pollution) and according to space management and environmental protection hypotheses. Hypotheses on the international context and national development strategy remained underlying throughout the entire project and we worked to ensure global coherence. The trend scenario for the Iskenderun Bay by the year 2025, is characterized by moderate economic growth and the search for short-term profits in a framework of strong competition, an inef-



POLLUTION ARISING FROM MARITIME TRAFFIC

fective social policy, a policy of space management with few constraints and many conflicts, and finally curative action on a case by case basis under the pressure of events in terms of environmental protection. The prospective scenario thus obtained, shows a two-speed socio-economic development with highly contrasting land uses. Areas of economic downturn and of rural exodus coexist with highly industrialized areas of growing urbanization and communication routes. The various forms of pollution and nuisances deeply degrade, even destroy, the physical environment, including the coastal ecosystem. Many conflicts arise over the activities to be selected in the use of natural resources. The alternative scenario is characterized by a strong economic growth in a context of regional cooperation, a slower and balanced urbanization between large and medium-sized cities, the diversification of industrial production and tourist services. This scenario requires voluntarist policies regarding land management and environmental considerations to establish the conditions for sustainable development. In this context, the Iskenderun Bay in the year 2025 presents itself (Figure 3) as a regional whole structured around an industrial and urban pole with controlled development, framed by two areas of balanced development based on rational use of natural resources (agriculture, fisheries, aquaculture) and on tertiary activities compatible with the protection of certain important environmental perimeters. During the third phase of presentation and discussion of results, the Blue Plan participated in the public presentation of the final report by the Turkish team from the Political Science Department of the University of Ankara, which illustrated the whole endeavour and the main results through a number of maps and diagrams. The presentation was made to a large audience of local authorities (municipalities, chambers of professional groups, associations for the protection of the environment of the Iskenderun Bay area, industry) and officials from the various ministries and state bodies. The discussion brought about a fruitful exchange of views on the proposed model for environmental management and the conditions for its implementation.

The "Iskenderun Project" was published under the auspices of the Blue Plan in two volumes in English. Volume 1 (original in Turkish) contains the report of the Turkish team and Volume 2 (original in French) contains the specific contribution of the Blue Plan. The whole will be published shortly in the MAP Technical Reports Series.

About 35%, or more than 350 million tons per year, of the international crude and refined product movements take place through the Mediterranean. Turkey represents some 5% of the regional share of oil and refined products in its coastal waters. The Marmara Sea and the Straits of the Dardanelles and of the Bosphorus, as well as the big cities like Istanbul, Izmir, Mersin and Iskenderun, which are exposed to intensive maritime traffic, run important risks of spills and marine pollution which has considerable environmental and economic impacts.

The Straits of the Dardanelles, the Bosphorus and the Marmara Sea, where 24,000 vessels a year pass in transit, are getting significantly polluted by maritime traffic. The total tonnage of vessels passing in transit is 227 million GRT a year. The total cargo transported is 42 million tons of which more than 16 million are crude oil. In addition, there is cabotage of considerable volume since the area is industrialized.

Under the Montreux Treaty, commercial vessels, whatever flag they fly, have the freedom of transit passage and navigation day and night, regardless of their cargo. Furthermore, there is no land-based control system for the maritime traffic through the Straits and the Marmara Sea and this poses grave risks in cases of heavy traffic, poor visibility, strong waves and vessel failure. At the recent meeting of the Contracting Parties in Antalya, last October, the Turkish Minister of Environment, stated that his country did not wish for the Straits to become the transit passage *par excellence* for tanker traffic and extended a plea to all environmentalists to "unite against all initiatives in this direction".

Following the developments in the ex-Soviet Union, increased demands by ten newly established Republics for the use of the Black Sea for economic purposes are raising the vessel traffic in this sea.

In the eastern Mediterranean, particularly the strip between Tasuscu and Iskenderun, industrial and agricultural activities, and the seasonal population increase due to tourism which leads to greater quantities of domestic waste, are major reasons of pollution alongside oil and oil derivatives originating from tanker traffic.

In particular, oily waste discharge into the sea during loading at the petroleum refinery in Mersin and at two oil pipeline terminals in the Iskenderun Bay has increased over the last 15 years, despite port reception facilities in the bay. Also the vessel traffic is expected to grow considerably when natural gas starts being transported by pipelines under the natural gas agreement signed between Turkey and the Turkmenistan. Similarly, considering that a significant percentage of transport, imports and exports to and from the region under the Great Anatolian Project (GAP) will be through the Iskenderun port, it may be argued that the vessel traffic will reach significant dimensions in the future, not to mention the further increase expected if agreement is reached with the Central Asian Republics, in particular Azerbaijan, on oil transport through the Iskenderun Bay.

The Environmental Act imposes fines for polluting coasts, territorial waters, the Marmara Sea, the Bosphorus and the Dardanelles Straits - which are inland waters - as well as ports, bays and natural or artificial lakes. These fines are levied by port authorities and by the Coast Guard Management or by local authorities depending on the particular case. In addition, the Port Act lays down fines for pollution. The "Regulation for the control of water pollution" and the "Regulation concerning the establishment of guilt in fines to be levied on ships and other marine vessels" provide the necessary technical details and standards in the implementation of these laws. Following international practices aiming at the protection of the seas from pollution by vessels and other sea craft, work has been accelerated to establish port reception facilities in Turkey, in conformity with the "Emergency Protocol" of the Barcelona Convention.

Finally, close cooperation between Turkey and the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), in Malta has been established in the context of the preparatory work for the national contingency plan. The draft national contingency plan, which is at the final stage, covers the Black Sea, the Aegean Sea, the Bosphorus, the Dardanelles and the exclusive economic zone.



BLACK SEA AND MEDITERRANEAN: THE TURKISH LINK

In 1989, when the upheavals in eastern Europe and the Soviet Union took place, the situation in the Black Sea was considered very alarming. In truth, it has not ceased to deteriorate over the last 30 years. The absence of systematic political consultation among the coastal states led to the lack of a regional plan which would stop its degradation. The Black Sea is permanently anoxic (without oxygen) below 150 to 200 metres, accounting for 90% of its total volume. It receives runoffs from a watershed covering 6 coastal states and substantial parts of 11 other countries, from Germany to Bielorussia, representing a population of 165 million people, with important industrial and agricultural areas. On its north-west shelf, the main channels of pollution are the rivers Danube, Dniester and Dnieper. Apart from the cities and industrial complexes along the coast, as well as shipping, vast areas of coastal waters have lost their natural flora and fauna, fishing and tourism have been devastated. The specific aspect of the vulnerability of the Black Sea comes from the fact that it is an enclosed sea (in other words there is no water exchange between it and the oceans) and the total size of land-based sources of pollution that surround it. However, the biggest problem in the Black Sea is perhaps eutrophication, which has meant generalized anoxia and a shortening of the marine food chain. The deep changes in the marine ecosystem of the Black Sea through eutrophication have contributed to the decline and near total disappearance of fishing which had already been seriously affected by overfishing.

The changes in the political situation in the beginning of the 90s led to the 6 coastal states, Bulgaria, Georgia, Rumania, Russia, Turkey and the Ukraine, to establish contacts which led to in-depth discussion about the ways to handle these serious problems. Turkey played a pivotal role in this process, because it was the only one among these countries which had a Mediterranean coast and the relevant experience gained in the framework of the Mediterranean Action Plan since 1975. Indeed, almost 20 years after MAP was launched and the Barcelona Convention adopted (and these are 20 years of very serious environmental degradation...) the coastal states of the Black Sea follow a similar course, with the support of UNDP, UNEP and the World Bank. The

Convention on the Protection of the Black Sea against Pollution (or Convention of Bucharest) and its first three Protocols (Land-based sources, Dumping and Emergency) were signed by the representatives of the coastal states on 21 April 1992. The ratification of the Convention by 4 coastal states is required before it can enter into force. For the coordination of activities in the implementation of the Convention and the three Protocols in the coastal states, a Black Sea Commission was created along with a Secretariat set up in Istanbul to carry out the work entrusted to it by the Commission.

The Black Sea coastal states thus demonstrated in Bucharest, that they committed themselves to solving the problems of the sea they share. This commitment was reaffirmed yet one more time with the **"Ministerial Declaration for the protection of the Black Sea"** adopted in Odessa, 7 April 1993. With it the Ministers of the Environment of the coastal states approved the conceptual framework of a future "Black Sea Action Plan" which will be de-

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veloped by 1996 and then submitted for evaluation by the Ministers; it is envisaged that 6 Regional Activity Centres will be created to support this plan.

The main conditions for the effective implementation of the Convention of the Black Sea and its Protocols are the following: assessing the state of the environment in the Black Sea, the development of an effective methodology of environmental management in the region, the upgrading of technical and institutional capabilities, the development of appropriate technologies to combat pollution and the securing of the required financial resources. The Turkish initiative to launch a regional environmental project to reinforce cooperation among the Black Sea coastal states, to coordinate regional and international activities and to secure assistance in order to use the relevant experience of international organizations was fully endorsed by the coastal states and the international organizations represented at the Odessa meeting. **The Programme for the Environmental Management and Protection of the Black Sea**, to be funded by the Global Environment Facility (GEF), a trust fund managed by UNEP, UNDP and the World Bank will help develop the above mentioned Action Plan. Following a series of technical meetings, the draft document was finalized and signed in Varna, Bulgaria, on 30 June 1993. The activities implemented in the framework of the project will be coordinated by the Coordinating Unit established in Istanbul. It is estimated that \$ 31 million will be required to implement the three-year pilot phase of the programme. The Global Environment Facility has allocated \$ 9.3 million to the project. In July 1993, the total amount of funds had reached \$ 20 million and it is envisaged that additional funds will be provided by the international community.

In hosting the Coordinating Unit/Secretariat of the Bucharest Convention in Istanbul, Turkey therefore forms a link between the Black Sea and the Mediterranean which admirably suits its geographical position as a bridge between the two seas. Obviously the two programmes are fully autonomous; it could not be otherwise, given the time lag between the two and the specificity of some of their problems. However, it is conceivable and desirable that they will be in a position in the future to exchange data and experience for the benefit of all concerned.