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PROTECTION OF THE MEDITERRANEAN SEA
AGAINST POLLUTION FROM LAND-BASED
SOURCES: A SURVEY OF NATIONAL LEGISLATION

INTRODUCTION AND REVIEW

Prepared in co-operation with the World Health Organization

PROTECTION OF THE MEDITERRANEAN SEA AGAINST POLLUTION FROM
LAND-BASED SOURCES: A SURVEY OF NATIONAL LEGISLATION

I. INTRODUCTION

For the purposes of the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution, "pollution" is defined as the introduction by man, directly or indirectly, of substances or energy into the marine environment resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for use of sea water and reduction of amenities.¹ There are of course numerous sources of such pollution and diverse pathways by which pollution reaches the sea. It is difficult to quantify the contribution of land-based sources, although it is generally recognized as very substantial.² In this survey, an attempt has been made to review national legislation in the Mediterranean States aimed, whether directly or indirectly, at controlling land-based pollution; under Article 8 of the Barcelona Convention, this form of pollution is interpreted to mean "/pollution/ caused by discharges from rivers, coastal establishments or outfalls, or emanating from any other land-based sources". By way of comparison, it may be mentioned that "land-based pollution" is defined in the 1974 Convention on the Protection of the Marine Environment of the Baltic Sea Area as "pollution of the sea caused by discharges from land reaching the sea waterborne, airborne or directly from the coast, including outfalls from pipelines".³

There have of course been previous surveys on the subject, covering either the majority of the States concerned or a relatively small number.⁴ Numerous studies have also been published on the legislative framework in particular countries.⁵ Scrutiny of the existing material has, however, demonstrated the need for updating and extending the available information to take into account the large number of laws and regulations that have been adopted in recent years, notably since the 1972 United Nations Conference on the Human Environment and various meetings and other activities devoted specifically to the problems of the Mediterranean and promoted by diverse governmental and non-governmental organizations and agencies.⁶ Furthermore, existing surveys of legislation have often had to rely, for a variety of reasons (linguistic and otherwise), on secondary or even tertiary sources rather than on the original material, i.e. the actual legislative instruments themselves. As will be seen from the description of the methodology used for this survey, every effort has been made to rely exclusively on original material.

An analysis, however complete, of legislative texts cannot provide an adequate picture of the actual situation in practice. It is considerably easier to identify the legislation as such than to obtain reliable and documented information concerning the application (or non-application) of legislation. Moreover, even in countries where literature does exist on the subject of the implementation of legislation, a full analysis would present major difficulties and would not necessarily provide an accurate and complete picture. No such analysis has therefore been attempted, and hence the legislative patterns which this survey seeks to identify may or may not be fully reflective of the situation existing in practice. It may be mentioned that, on the basis of information collected during the survey, there are definite indications that a considerable lag exists between legislation and its application or enforcement. However, in the event of a Protocol dealing with land-based sources of pollution being adopted, mechanisms already in place could possibly be activated or reinforced with less difficulty and in a shorter period of time than would be entailed by the introduction of new legislative texts and the establishment of new structures.

A survey of legislation dealing with marine pollution control must of necessity cover legislation dealing with such matters as waste disposal as well as legislation on the control of freshwater pollution. As du Pontavice states in the introduction to a survey published by FAO in 1972: "Laws on freshwater pollution will be /covered/ for two reasons, namely:

the very logic of pollution control requires that it be dealt with at the source and most marine pollution emanates from the land and reaches the sea through freshwater streams emptying into it; historically speaking, the sea, long hostile and closed to navigation, was then opened to commerce and war but has not been the subject of attention by the legislators of the various states until very recently; the seas used to be free, in the sense that those sailing the seas were out of bounds for government control and consequently national regulations were concerned rather with the protection of inland waters than with the seas or even coastal waters. Only lately has thought been given to protection of the seas."⁷

It may be mentioned at this juncture that du Pontavice's survey served as a most valuable starting point for the present survey. Another, more recent and highly useful survey, is that of Kuwabara.⁸ In her introduction, Kuwabara echoes the observations of du Pontavice in the following terms:

"It should be pointed out that strictly speaking, there has been, until recently, no legislation aiming at the control of marine pollution *per se*. The prohibition or regulation of discharges of harmful wastes into the coastal waters, for example, has been promulgated mostly to prevent the contamination of fishery resources and protect human health. Furthermore, the oceans having been considered as an infinite receptive tank of undesirable matters produced by man, national legislation concerning the control of wastes into the marine water has been far behind the actual requirements of control. Often, such control measures are merely an extension of those established for freshwater pollution, and there are areas where literally no regulation exists, such as land run-offs or the atmospheric transport of pollutants. Thus, the present survey of these laws and regulations is focused on the preliminary but basic question of what legislative controls, if any, are applied in each coastal state, with regard to land-based sources of marine pollution."

It might well be argued that any survey of legislation on marine pollution control ought to pay due attention to measures for the control of air pollution, since substantial quantities of pollutant matter may well be introduced into the marine environment from the air. However, at the present stage, it was felt that an attempt to deal with airborne pollutants would enlarge the scope of the survey to an excessive extent and would result in undue complications and delays. Furthermore, it may be argued that airborne pollution should be excluded on account of the uncertainty as to the geographical location of the sources. Extensive legislation exists in a number of countries dealing with legislative measures for the control of pesticides and of radioactive effluents. Legislative reviews have already been published on these problems and they will be considered here only very briefly, although it is recognized that airborne pesticides in particular constitute a significant source of pollution in certain parts of the Mediterranean. Furthermore, measures to limit the release of persistent chlorinated hydrocarbons (particularly DDT) have already been taken or are being taken by many countries, and it is perhaps reasonable to assume that further considerable progress will have been made in dealing with this problem in the area concerned by the time a Protocol comes into force.

II. GEOGRAPHICAL SCOPE

The present survey covers all the coastal States of the Mediterranean Sea, with the exception of Albania (for which no information could be obtained). It also covers two other countries located upstream on rivers flowing into the Mediterranean and which may therefore be contributing to varying degrees to the pollution of the Mediterranean, viz. Sudan and Switzerland. Although primary emphasis has of course been given to legislation at the national level, due consideration has been given to the fact that, in certain States, significant authority for marine pollution control devolves upon subnational jurisdictions. Thus, in the case of Yugoslavia, no survey would be complete that failed to take account of the existence of legislation at the level of the individual republics, and the same applies to Italy with regard to the legislation of the individual provinces and regions. In France too, certain significant items of legislation are issued at the Departmental level. In the case of Switzerland, relevant legislation of the three Cantons bordering on the Rhône has been briefly analysed.

In many of the countries examined, legislative measures are currently under discussion and may well become law before the adoption of any Protocol. Accordingly, due attention has, where possible, been paid to draft texts.

It should be stated here that the inclusion of Sudan and Switzerland does not, of course, imply that these countries will necessarily be parties to future negotiations on a protocol on land-based sources of pollution (a decision on this matter will have to be taken by the Mediterranean coastal States themselves, probably at their first intergovernmental meeting on the protocol). As a result of an earlier decision by the Mediterranean coastal States, pollution in the Black Sea area has not been covered.

III. SOURCES AND METHODOLOGY

Reference has already been made in the introduction to the two major earlier surveys, i.e. du Pontavice's 1972 study (a somewhat lengthier version of which was published in *Droit Maritime Français*⁹) and Kuwabara's unpublished survey (1975). A survey of groundwater legislation in Europe published by FAO in 1964, as well as two recent FAO compilations, dealing respectively with water law in a number of European countries and water laws in selected Moslem countries, have been heavily drawn upon.¹⁰ Information for a number of countries covered has also been extracted from the replies to a Questionnaire on pollution of the sea sent to a number of countries by the United Nations Administrative Committee on Co-ordination's Sub-Committee on Oceanography (1967),¹¹ and documents prepared by the United Nations Economic Commission for Europe for a Seminar on the Protection of Coastal Waters against Pollution from Land-based Sources (Lisbon, November 1975) and for the Fourth Session of Senior Advisers to ECE Governments on Environmental Problems (Geneva, February 1976). Various documents and conference proceedings prepared under the auspices of the Inter-Parliamentary Union have also proved to be useful sources. Finally, it should be mentioned that English translations of many of the texts covered have appeared in the quarterly publications *Food and Agricultural Legislation* and *International Digest of Health Legislation*, published by FAO and WHO respectively.

The following methodology was used for the present survey. On the basis of all available sources at WHO Headquarters, provisional lists were made of what appeared to be the relevant legislation currently in force in the individual countries. Each list was then sent to a specialist in the country concerned, with a request that the list be scrutinized and any additional legislation be forwarded to WHO. This approach proved successful and compilations that seemed to be fairly complete were obtained. A number of texts were translated from Arabic, Greek, Hebrew, and Turkish, after it had been ascertained that no English or French translations prepared under official auspices existed. Monographs were then prepared on the legislation of the individual countries and were sent for review to Government officials or other competent specialists in the different countries. They were asked to point out any omissions or inaccuracies and to make suggestions and improvements. Most of the monographs in the survey have been cleared following this procedure.

IV. REVIEW OF THE LEGISLATION

This review of national legislation will, for purposes of convenience, be structured so as to elucidate the measures currently being taken (or known to be in preparation) in individual countries and that are relevant to the substantive principles that have been suggested for inclusion in the Draft Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources.* Principles 2, 10, and 11 in document UNEP/IG.6/3 are not related to substantive control measures, but rather are primarily concerned with the administration of and supporting measures for the draft protocol (geographical coverage, scientific and technical cooperation, and more stringent measures). Consequently, these three principles will not be referred to in the following Section. Furthermore, the non-inclusion of a country in the discussion of the application of a particular principle does not necessarily signify that no relevant legislation exists. The objective in this review has merely been to demonstrate some characteristic features of the legislation.

On perusing the individual country monographs in the survey, the reader may well discern some variations in approach and some imbalance in the space devoted to particular items of legislation. To a large extent, this can be attributed to the differing approaches (due to historical, geographical, political, economic, and other factors) taken by the States themselves in dealing with the problem of marine pollution. Signs of harmonization are still conspicuous by their absence and no attempt has therefore been made to adopt a uniform schema in the country monographs.

* See document UNEP/IG.6/3.

General obligation (Principle 1)

Under the terms of this Principle, the Contracting Parties would pledge themselves to take all appropriate measures to prevent, abate, and progressively reduce marine pollution derived from land-based sources.

Reduction of pollution from existing sources (Principle 3)

Under this Principle, the Contracting Parties would undertake to elaborate and adopt programmes for the progressive reduction of pollution from existing land-based sources.

Before discussing the measures taken in the different States to implement these Principles, it may be appropriate to quote Kuwabara:

"If we consider the minimum requirements for the control of coastal discharges, national regulations should first define the potential risks of wastes and substances likely to be discharged from various land-based sources, and establish as appropriate regulatory measures ranging from total prohibition to discharges in accordance with fixed standards, or with prescribed best practical means. In any event, all waste discharges should be regulated by a licensing or permit system. Further, in order to support the effective enforcement of the regulations, systematic monitoring of discharges and of the receiving waters should be undertaken, and records of type, quantities and methods of discharge be kept. The authorities issuing permits should be equipped with powers to request submission of any data concerning discharged wastes, carry out inspection, and issue orders to improve facilities or alter methods of production, treatment or disposal, and even to stop discharges for any given period of time. In case of non-compliance, the authority should have the power to revoke permits or licences issued, and to institute legal proceedings or apply penalties.

This type of comprehensive national legislation has been enacted in some states. However, the situation in the Mediterranean coastal states is not yet so advanced. Except for a few recent laws in some states, such as France and Italy, the existing laws and regulations seem to be based on the traditional approach, namely, they are prohibitive but without clearly defined scientific criteria or methods of control. Furthermore, they are enacted not so much to protect the marine environment, but specific interests such as fishery resources, or public health. Thus, the overall system of control, in spite of a large number of relevant laws and regulations, may be still inadequate to preserve the health of the sea."¹²

As will be seen from the analysis that follows, the above views must still be regarded as essentially valid, since in most countries there continues to be a multiplicity of texts and a dispersion of responsibilities in regard to marine pollution control. However, there are definite signs of a new awareness of the problems of marine pollution (as evidenced notably by the establishment of high-

level committees to deal with the matter) and of the relevance of legislation as a mechanism for dealing with these problems (as evidenced by the number of countries in which draft legislation is now under consideration).

In outlining some of the current programmes for the implementation of Principles 1 and 3, no attempt will be made to touch on the detailed provisions of the existing legislation; emphasis will instead be placed on some of the noteworthy features of the legislation and of significant initiatives taken at the national level.

In Algeria, a draft Ordinance embodying the principles of water legislation is now under consideration. One of its Chapters deals with the protection of water resources and the prevention of pollution. A National Committee for the Environment was established in 1974. One of the four specialized sections of the Permanent Secretariat of the Committee deals with technical studies and legislation.

In Cyprus, there is no comprehensive legislation dealing with the control of water pollution, but a comprehensive Water Code is reported to be in the course of preparation.

In Egypt, the basic items of legislation that deal with water pollution control are Law No. 93 of 1962 on the discharge of liquid wastes and Regulations for its implementation issued in 1967. A Higher Commission on Waters was established by a 1966 Decree; its functions include assisting projects for the discharge of human and industrial wastes and other pollutants, with a view to preventing the pollution of surface waters and groundwater.

France has adopted a multi-faceted approach to the problem, the central item of legislation being Law No. 64-1245 of 16 December 1964 concerning the administration and classification of waters and the control of water pollution. The overall policy represents a combination of procedures aimed at (1) prohibiting or, as appropriate, limiting the discharge of pollutants, and (2) improving the quality of receiving waters. Furthermore, an inventory (subject to regular revision) is made of all surface waters on the basis of specified physical, chemical, biological, and bacteriological criteria. Numerous Ministries are concerned with various aspects of pollution control, but their activities are now coordinated by a specialized Ministry, viz. the Ministry for the Quality of Life. Other major bodies at the national level include the Interministerial Commission on Water and the National Committee on Water. Economic measures to promote pollution control have been taken, notably through the intermediary of the Intervention and Action Fund for Nature and the Environment. The "polluter-pays principle" has been adopted, the amount of the levy payable by polluters being proportional to the quantity of pollutants discharged into the water. As a result of a decision of the *Conseil d'Etat*, it has become possible for levies to be imposed on undertakings effecting discharges into the sea. However, the system is not solely punitive, since there are financial inducements offered by the State to polluters who undertake appropriate water-treatment projects.

In Greece, the primary legislative tools employed to deal with marine pollution are a series of texts dealing with effluent discharges. A Bill on marine pollution, one of the objects of which is said to be the codification of existing legislation, is currently being drafted.

In Israel, the legislative framework to deal with marine pollution does exist but the available powers do not appear to have been fully utilized. An Environmental Protection Service, formerly within the Prime Minister's Office but now attached to the Ministry of the Interior, has been established, as have a number of other advisory bodies at the national level. The most recent development is the establishment (on 13 June 1976) of a National Committee for the Prevention of Pollution of the Sea, composed of representatives of seven Ministries and seven State institutions.

In Italy, there is a multiplicity of authorities having jurisdiction over various aspects of pollution control and a very substantial number of texts dealing with the problem. However, official reports indicate that much of the legislation has not been adequately enforced. Some of the difficulties have no doubt originated in the division of powers between the central Government, the regions, the provinces, and the communes, and one of the objectives of a new statute (known as the "Merli Law" after the President of the Parliamentary Committee for the Study of Water Problems), expected to come into force in the latter part of 1976, will be to define in precise terms the respective powers of these jurisdictions.

In Lebanon, a Committee for the Study of Marine Pollution has been established; it was also reported in 1974 that "a new law regarding the dumping of wastes in Lebanese territorial waters was about to be adopted. It would oblige all factories to install effluent treatment plants."¹³

In Libya, a General Water Authority has been established and a new draft Water Resources Law is under consideration, as are proposed Regulations (May 1976) for water pollution control and water resources conservation.

Malta has no statute dealing specifically with marine pollution. A Report containing "suggestions and recommendations for the improvement and modernization of the Laws of Malta in respect of water and liquid and solid wastes" has been issued and may well lead to new legislation.

Legislation in Monaco dealing with water pollution control has largely been promulgated since 1971, the most recent item of legislation being Law No. 954 of 19 April 1974, which deals with both water and air pollution.

There have been no significant legislative developments in Morocco dealing with water pollution control since 1925. However, a National Committee for the Environment and Regional Committees for the Environment were established in 1974. The powers of the National Committee include commissioning studies by the competent Ministries aimed at assuring the ecological equilibrium of the ambient environment and the control of pollution and nuisances.

In Spain, there is a trend towards the coordination of efforts aimed at the protection of the environment, including the control of water pollution. It would appear that a National Environmental Protection Code is in the process of preparation. Various high-level committees have been established to deal with diverse aspects of water pollution, including a Specialized Committee for the Control and Prevention of Marine Pollution.

In Sudan, a comprehensive Environmental Health Act was promulgated in 1975. One of its Chapters is devoted to water.

In Switzerland, numerous important items of legislation have been promulgated both at the Federal level and at the Cantonal level for the implementation of the Federal Law of 8 October 1971 on the protection of water against pollution. The most significant item of legislation is certainly the Ordinance of 8 December 1975 on the discharge of wastewater.

A Central Directorate for the Protection of the Environment and the Control of Water Pollution has been established in Syria. A Law was promulgated in 1972 dealing specifically with measures to prevent the pollution of maritime coastal waters by petroleum and petroleum products. The "polluter-pays principle" is embodied in Standing Instructions issued in 1973 by the Directorate of Port Affairs of the General Maritime Department. It is interesting to cite the criteria used for determining the sums to be paid by polluters, viz. damage to public property (including such amenities as tourism), damage to private property, and the real costs of eliminating the pollution (including compensation for the work of the various commissions concerned).

Tunisia is one of the few countries covered in the survey which now has a comprehensive Water Code. This reflects an overall policy towards water pollution management, with one of the principal rubrics of the Code dealing with "Harmful effects of water". There is a National Water Committee, whose functions include the giving of advice on any matter relating to the protection of waters.

In Turkey, the principal current measures for dealing with pollution are incorporated in a 1971 Law on water-derived resources and in Regulations for its implementation. However, a draft Law on the prevention of pollution and the protection and inspection of waters is now under consideration. It would appear that this Bill is the first in the Mediterranean area to incorporate the "zero-emission" principle, although no timetable has been fixed for attaining this objective.

In Yugoslavia, a comprehensive series of measures for dealing with marine pollution control are contained in the basic Law on waters of 1965 and in a 1973 Law on inter-republic and international waters. A commission known as the Yugoslav Commission for the Protection of the Sea and of Waters used for Domestic Shipping Routes against Pollution was established by a 1969 Order.

Harmful substances. (Principle 4)

Under this Principle, the Contracting Parties would undertake to prohibit and effectively prevent pollution of the Mediterranean by a number of particularly harmful substances. This prohibition would become effective within a time limit to be specified.

Substances requiring special care (Principle 5)

This Principle would require the Contracting Parties to impose special controls and strict limitations on discharges of certain substances referred to as "substances requiring special care". Within a time limit to be specified, all such discharges would be subject to the prior possession of a special permit granted and periodically reviewed by the competent national authority.

A precedent for the separation of substances into two categories (i.e. (a) substances that are considered to be the most harmful and which are prohibited, and (b) substances that are considered as less dangerous but which still are to be treated with special care) was established by the Mediterranean coastal States when they adopted the Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft in Barcelona on 16 February 1976. The Protocol prohibits the dumping of substances on the "black" list, requires a prior special permit to be issued by the competent national authority for the dumping of substances on the "grey" list, and requires a general permit for the dumping of all other wastes or other matter.

For the purposes of this review, the two categories of substances have been considered jointly, insofar as the legislation in most countries does not necessarily establish any clear distinction between them. Moreover, in some instances the relevant provisions are of a very general nature while elsewhere they may be highly specific from both the qualitative and quantitative standpoints.

Agricultural chemicals. In Algeria, one of the provisions in the draft Ordinance embodying the principles of water legislation prescribes that agencies in the agricultural sector must take appropriate measures to prevent water pollution resulting from the use of pesticides, fertilizers, and other potentially harmful substances. In Turkey, a 1935 Law empowers certain authorities at the local level to prohibit agricultural operations liable to cause water pollution. This could evidently be construed to cover operations involving the application of pesticides and fertilizers. In Cyprus, Malta, and certain other countries, legislation exists whereby all agricultural chemicals must be analysed and registered before use. This is an obvious mechanism for replacing the more toxic and persistent organo-chlorine pesticides by less environmentally harmful products. There is a complex

system of screening and authorization of pesticides in France and a number of texts have been issued that manifest a clear concern for environmental quality. In particular, an Order of 25 February 1975 requires pesticide applicators to ensure that there is no runoff of the products into watercourses or onto the seashore. In Greece, the importation and use of various pesticides (including hexachloro-benzene, organomercury compounds, and cadmium compounds) have been prohibited, while the use of DDT has been subjected to strict limitations. Stringent measures limiting the use of DDT and, in some cases, other chlorinated hydrocarbons have been adopted in Israel, Italy, Spain, Turkey, and Yugoslavia, and are envisaged in draft Regulations under consideration in Libya.

Detergents. According to available information, France, Israel, Italy, Monaco, Spain, Switzerland, Turkey, and Yugoslavia have adopted measures dealing specifically with detergents, while such measures are envisaged in Libya. It is evident that the 1968 European Agreement on the Restriction of the Use of Certain Detergents in Washing and Cleaning Products has had a significant impact on developments in this field.

Oil and associated products. Measures to prevent marine pollution by oil and oily mixtures from shore installations have been taken by several countries. Some of the relevant texts deal jointly with oil pollution from ships and from port installations (e.g. the Oil Pollution Regulations in Egypt, the Oil in Navigable Waters Ordinance, 1936, as amended, in Israel, and the Port Regulations, 1966, in Malta), others are based on the protection of the foreshore (as is the case in Cyprus), while others include oils among the substances whose discharge into the sea is prohibited or restricted under Regulations dealing with waste discharges in general. Among the most specific texts dealing with this problem are a Syrian Law (No. 10 of 26 March 1972), an Order promulgated in Spain on 27 May 1967 prohibiting the discharge by industrial installations of all kinds of petroleum products (or wastes containing such products) into the sea, and a Swiss Ordinance of 19 June 1972 on the protection of waters against pollution by liquids liable to cause a deterioration in water quality.

Other harmful substances. Perhaps the closest approximation to the approach reflected in Principles 4 and 5 is found in Yugoslavia, where the Law of 28 December 1973 on inter-republic and international waters establishes a distinction between "dangerous substances" and "harmful substances". The former may not be introduced into maritime coastal waters if they are liable to adversely affect the characteristics of these waters. In order to prevent the introduction of harmful substances into maritime coastal waters, the necessary protective measures (including the construction of effluent treatment plants, restrictions on or the prohibition of effluent discharges, etc.) may be imposed.

Many countries have, of course, imposed prohibitions or restrictions on discharges of substances and materials harmful to public health, fish stocks, environmental quality, or existing or planned water uses. Some of these substances or their active principles appear in Annexes I and II of document UNEP/IG.6/4. By way of example, mention may be made of the Turkish Regulations on water-derived resources, one of the Annexes to which enumerates a wide range of substances that may not be discharged into waters at concentrations above those indicated. The list includes various inorganic ions, organic chemicals (including pesticides), detergents, etc. There is an absolute ban on the discharge of wastes containing radioactive substances.

One category of waste that has received particular attention is that produced by the titanium dioxide industry. The Commission of the European Communities has submitted a detailed proposal for a Council Directive dealing with this subject.¹⁵ Once approved, any such Directive can be expected to influence the legislation of France and Italy and possibly other Mediterranean States.

A Directive that has already been adopted by the Council of the European Communities is that of 4 May 1976 (76/464/EEC) on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community.¹⁶ National regulatory measures to implement this important Directive will clearly have to be taken, under the Rome Treaty, by the States concerned.

Discharges from new installations (Principle 6)

This Principle would require the Contracting Parties to ensure, by a time limit to be specified, that all discharges of municipal or industrial wastes from new installations would have to undergo a minimum treatment complying with (as a minimum) certain technical guidelines.

It may be assumed that the implementation of this Principle entails a system of licensing of discharges, with the requirements to be fulfilled by discharges from new installations being determined within the framework of this system.

In Egypt, one of the provisions of Law No. 93 of 1962 on the disposal of liquid wastes makes the discharge of wastewater from public places and facilities and from certain industrial undertakings subject to a licence. The standards to be satisfied by the effluent are indicated in the discharge licence.

In France, the principle of licensing for all significant wastewater discharges was established by a Decree of 23 February 1973, the conditions governing discharge licences having been determined by a series of Orders promulgated on 13 May 1975. The opening of so-called classified establishments is also subject to a licence under the 1917 Law. Law No. 76-663 of 19 July 1976 relating to installations classified for the protection of the environment (due to come into force on 1 January 1977) will make the existing system more severe. To quote the introduction to a recent draft Directive of the Council of the European Communities:¹⁷

"The Orders issued by the Préfet pursuant to the /1917 Law/ authorizing the setting-up of industrial establishments are subject to conditions which govern, among other things, the discharge of effluent into water courses. A new draft law makes these conditions even stricter and stipulates that any authorization granted must take account of the dangers or drawbacks which the industrial establishment in question may present as regards nature and the environment and must lay down installation and operating conditions concerning, in particular, the purification and disposal of effluent, wastes and residues."

In Greece, the Sanitary Regulations of 22 January 1965 established a system of licensing of discharges of sewage or industrial wastes into surface waters. Moreover, official authorization is required for the disposal of sewage or industrial wastes, prior to the construction of sewers for dwelling-houses, hospitals, factories, etc.

In Israel, the Licensing of Businesses Law of 1968 provides a mechanism for controlling industrial pollution. In order to receive a licence, an undertaking subject to the Law must submit a plan for waste removal and purification for approval. There is also a system for the compulsory approval by the Water Commissioner of "sewage disposal schemes".

In Italy, Section 9 of the Fisheries Code requires industrial establishments to obtain a licence before discharging effluents into public waters. There are corresponding provisions in Law No. 963 of 14 July 1965 on the control of sea fisheries. Under the Regulations for the implementation of the latter Law, industrial effluents and effluents from public services may not be discharged into

maritime waters without a licence. One of the provisions in the new "Merli Law" on water pollution also provides for a system of licensing of effluent discharges; thus, Section 11 of the Law would make all discharges of effluents directly into the sea, whether from industrial plants, public services, or establishments of any kind, subject to the granting of a licence.

It has been reported that in Lebanon special licences are required for the construction of factories along the coastline and that these licences stipulate the measures to be taken to prevent pollution.

The draft Water Resources Law in Libya includes a provision whereby any person, water supply organization, or industrial establishment would be required, before disposing of any solid or liquid waste, to apply to the General Water Authority for a waste disposal authorization. There are corresponding provisions in the proposed Regulations on water pollution control. Highly detailed emission standards for effluents discharged into the sea are also included in these Regulations.

In Monaco, new installations engaging in the withdrawal or discharge of seawater are required, under Sovereign Ordinance No. 4884 of 7 March 1972, to submit plans of their treatment system for approval, and to obtain the authorization of the Administration to commence operation.

In Spain, there is a complex system of licensing of discharges from industrial and other undertakings. Under the terms of an Order of 23 March 1960, any person responsible for the discharge of effluents is required to maintain the receiving water in the state of purity specified in the authorization. The authorization determines the organoleptic, physicochemical, chemical, and biological criteria to be satisfied by the discharge.

In Switzerland, the Federal Law of 8 October 1971 on water protection prohibits the discharge into water of liquids and gases, including domestic and industrial wastewater, unless appropriate treatment has been carried out in accordance with Cantonal legislation; furthermore, wastewater may not be discharged without the authorization of the competent Cantonal authority.

In Syria, a 1964 Decree makes the construction of factories, laboratories, and pipelines for petroleum or chemicals, located in the vicinity of public waters, subject to a licence; this licence is to indicate the measures to be taken to avoid any pollution of waters by harmful wastes.

In Tunisia, there is a system of prior approval by the Minister of Agriculture for all new installations, the processes to be used for the treatment of effluents, the systems to be used for the discharge of the treated effluents, and the technical design of treatment plants. There is also a system of screening of applications to open so-called classified establishments. The information to be examined includes the methods to be employed for the disposal, use, and treatment of effluents and other wastes.

In Yugoslavia, the Federal Basic Law on waters prescribes that an authorization is required from the water management authorities for the construction of any plant, facility, or building that intends to discharge wastewater; a licence is granted only if the construction plan makes provision for a wastewater treatment plant.

Special guidelines, criteria, or standards (Principle 7)

This Principle would require the Contracting Parties to progressively elaborate and adopt common guidelines, criteria, or standards for the length, depth, and position of pipelines for coastal outfalls, for the treatment of hazardous types of sewage, for the quality of water for specific purposes (e.g. fishing, aquaculture, or bathing), and for the gradual replacement of products, installations, and industrial and other processes contributing significantly to water pollution.

One of the most useful recent contributions to the literature dealing with the formulation of standards for water pollutants is a review of the methods employed for the purpose in the countries belonging to the United Nations Economic Commission for Europe.¹⁸ France, Italy, Spain, Switzerland, Turkey, and Yugoslavia are among the countries covered.

Turning to the individual States covered in the survey, it will be seen that a number have not yet proceeded to establish emission standards for effluents and/or water quality objectives for coastal waters or indeed for inland watercourses.

In Algeria, provision is made in the draft Ordinance on water legislation for the issuance of standards for pollutants in sewage. If the Ordinance is adopted, discharges from sewers could be limited, suspended, or prohibited in the event of immediate or future health or environmental hazards.

Egypt has established standards to be fulfilled by wastewater discharged into different classes of watercourses. The standards for discharges into the sea are of a general nature, it being prescribed simply that "All kinds of wastewater may be discharged into the sea ... provided they do not contain any matter which may adversely affect beaches, marine installations, shellfish-breeding areas, or fish and other aquatic organisms."

Under the French system of discharge licences, effluents to be discharged into a receiving water must meet certain well-defined criteria, the latter being established on the basis of the conditions of use of the receiving waters, their degree of pollution, their capacity for natural self-regeneration, and the need to preserve the biological equilibrium of the environment. The technical standards to be fulfilled by industrial discharges were defined by Instructions issued on 6 June 1953, while specifications as to the actual disposal of effluents are contained in a Circular dated 7 July 1970. An Interministerial Circular of 1 October 1975 established interim quantitative guidelines (*nombres-guides provisoires*) for sea-bathing areas. These will be cited here insofar as they may be of more than local interest. The guidelines comprise (a) general characteristics, and (b) microbiological characteristics. The pH must be between 6 and 9 and the oxygen saturation index between 80% and 120%; there must be no abnormal odour or colour; and no oils or grease must be visible to the naked eye. With regard to the microbiological characteristics, it is stated that the concentration in the bathing water of pathogenic organisms indicative of fecal contamination constitutes the "indicator" parameter of the wholesomeness of the water. The results at a given sampling point must, in more than 90% of cases, reveal less than 2000 total coliforms, 500 fecal coliforms, and 100 fecal streptococci per 100 ml of seawater; the counts in more than 95% of cases must demonstrate less than 10 000 total coliforms, 5000 fecal coliforms, and 1000 fecal streptococci per 100 ml of

seawater. Corresponding guidelines are also laid down in the case of shellfishing areas, though with regard to the general characteristics it is indicated that directives are currently being drafted by the European Communities and that these may well supersede recommendations contained in a report drawn up by the Inter-ministerial Group on Marine Pollution Problems. As regards microbiological characteristics, the permissible levels of fecal coliforms in the flesh of shellfish are indicated (these are stated to be more significant than counts made in seawater as such). It should be mentioned at this juncture that quality standards for bathing water were adopted by the Council of the European Communities by a Directive (76/160/EEC) dated 8 December 1975.¹⁹ As a consequence of their obligations under the Rome Treaty, France and Italy can be expected to adopt regulatory standards based on this Directive.

In Greece, the 1965 Sanitary Regulations on the disposal of sewage and industrial wastes deal in detail with the treatment of such wastes. They also include bacteriological quality standards for waters intended for swimming.

In Israel, the 1971 amendments to the Water Law conferred broad powers on the Minister of Agriculture to deal with sources of pollution, including "the use of certain substances or methods in production processes and in the operation and use of a source of pollution" and "the production, importation, distribution, and marketing of certain substances and products" (these powers could certainly be used to implement the idea of controlling and progressively replacing products, installations, and industrial and other processes which contribute significantly to water pollution, either directly or through airborne pathways).

In Italy, detailed standards for determining the acceptability of urban and industrial effluents, depending on whether such effluents are discharged into watercourses, lakes, the sea, or sewers, are contained in a 1973 Circular of the Ministry of Health. Although the standards are not normative as such, Regulations based on them have been adopted in certain communes as well as in a Decree dealing specifically with water pollution problems in Venice.

One of the tables included in the proposed Regulations (May 1976) under consideration in Libya establishes bacteriological standards for coastal zones used for recreation; provision is also made for the imposition of special restrictions where effluents are discharged into zones used for shellfish breeding.

In Monaco, there is a ban on the dumping of refuse of any kind in places where bathing is authorized; a master sewage plan has been prepared, which includes detailed specifications for the length, depth, and position of coastal outfalls.

In Spain, there are a number of provisions dealing with standards for discharges of industrial and other effluents. Perhaps the most pertinent to this survey are those contained in the 1969 Provisional Rules for the design and construction of installations for the treatment and discharge of wastewater into the sea along the Spanish coast. These take into account different types of wastewater treatment, the dilution of wastewater once it is discharged into the sea, the flow-rates of discharges, and the need to establish different standards for beaches, tourist areas without beaches, and other parts of the coastline.

A comprehensive approach to the problem of wastewater discharges has been taken in Switzerland, where the Ordinance of 8 December 1975 establishes both qualitative and quantitative standards for (1) receiving waters, and (2) wastewater discharged into watercourses and into sewers.

In Tunisia, one of the provisions of the 1975 Water Code empowers the Government to issue a decree laying down the conditions governing discharges, dumping, spills, etc. of water and materials. It would appear that this decree is to establish both effluent standards and quality objectives for receiving waters.

The new Turkish draft Law on the prevention of pollution and the protection and inspection of waters also reflects a comprehensive approach. The Bill defines "water pollution" as "the discharge, drainage, or piping of sewage and wastewater from industrial and tourist installations located in towns, villages, and the countryside, on beaches, and in other centres of habitation, as well as oil products, and gaseous, liquid, or solid materials, if the discharge concerned modifies the physical, chemical, radioactive, biological, and bacteriological characteristics, or affects the quality, use, or touristic or economic utilization of the receiving waters ...". Water pollution as defined in the above terms is categorically prohibited.

In Yugoslavia, provision is made in the legislation both for emission standards for effluents and for a classification of maritime coastal waters on the basis of their intended uses and their quality.

Protection of unpolluted areas (Principle 8)

This Principle would require the Contracting Parties to take appropriate measures to protect certain coastal areas against any land-based pollution, through the creation of marine parks, etc. They would also be required to draw up an inventory of such areas and of the protective measures applied to them as well as a list of areas destined for similar protection in the future.

Much valuable information relating to the implementation of this Principle is contained in a document prepared by the International Union for Conservation of Nature and Natural Resources for an Experts Meeting on Marine Parks and Wetlands in the Mediterranean Area to be convened by UNEP in Hammamet, Tunisia, in January 1977.¹⁴ The objectives of the survey of which the document is the outcome were as follows: "to establish an inventory of marine parks and natural marine reserves existing in the Mediterranean and on the Mediterranean coasts; to establish preliminary lists of zones which are protected or are on the verge of being classified as parks and marine reserves; to establish a list of coastal areas which require special protection in view of their ecological richness, their archaeological interest or special scientific value. The chosen areas will have to be ultimately subject to a more detailed study in order to get precise delimitations; to propose a future action plan for the protection of marine ecosystems in the Mediterranean area."

The survey covers virtually all the Mediterranean States and, in some cases, includes details of the legislative texts that established marine parks and/or nature reserves in particular countries. It would appear that the survey was completed before the promulgation in France of Law No. 75-602 of 10 July 1975. Although not directly concerned with marine parks as such, the statute is certainly of interest insofar as it provides for the establishment of a Conservatory for Coastal Areas and Lake Shores (*Conservatoire de l'Espace Littoral et des Rivages Lacustres*). The function of this institution is to undertake, notably in the coastal cantons, a land policy that will ensure the preservation of natural sites and ecological balance. While no specific mention is made of marine parks and nature reserves, they are clearly covered by the French term "*sites naturels*".

Another Mediterranean State which has enacted relevant legislation is Israel. The National Parks and Nature Reserves Law of 1963 provides for the establishment of nature reserves. Orders made under the Law have, in particular, designated certain areas of the Mediterranean coast as nature reserves. Regulations issued in 1969 prohibit the introduction into a reserve, or the deposit or release therein, of any effluent matter (defined to include polluting substances).

Monitoring (Principle 9)

This Principle would require the Contracting Parties to undertake appropriate monitoring measures, and in particular to assure the continued assessment of the levels of pollution in their coastal waters.

Moore has pointed out that "although few, if any, countries have legislative provisions dealing specifically with the monitoring of pollution in marine water, many do exercise sanitary controls over the contamination of fish, and especially shell-fish products."²⁰ Detailed information on national monitoring programmes is included in a 1976 document issued by UNEP;²¹ an intensification of these programmes can be anticipated as a consequence of the inception of the UNEP Co-ordinated Mediterranean Pollution Monitoring and Research Programme.²²

At the national level, Le Lourd has published a description of the French network for monitoring the quality of the marine environment,²³ while Keckes et al. have described the monitoring programmes being carried out in Yugoslavia.²⁴ A review of current methods of monitoring the pollution of seawater has been compiled by Barić.²⁵

It is interesting to mention that one of the final provisions of proposed Libyan Regulations for water pollution control and water resources conservation would require the Ministry of Health to establish special laboratories for water pollution and wastewater quality control and to carry out surveys and monitoring programmes "in order to provide basic data required for water quality management and to enforce compliance with prescribed standards."

Monitoring is of course an essential prerequisite for the preparation of an inventory of the level of pollution. Perhaps the most complex system for inventorization is that existing in France (the procedures were defined in a series of legislative texts promulgated in 1969). An initial inventory of the level of pollution of surface waters was prepared in 1971 and a second is reported to be in the course of preparation.²⁶

Another country which has adopted the inventory approach is Tunisia. One of the Sections in the 1975 Water Code provides for the preparation (and regular revision) of an inventory of all surface waters, watercourses, etc., with data being collected on the extent of pollution in terms of physical, chemical, biological, and bacteriological parameters. The drawing up of an inventory of waters is envisaged in a Bill on the prevention of pollution and the protection and inspection of waters, now under consideration in Turkey.

Data derived from monitoring programmes can also serve as the basis for the classification of waters according to purity criteria and intended uses. A system of water classification has been introduced in Greece (the Sanitary Regulations of 22 January 1965 classify marine waters into four classes on the basis of a number of parameters), while in Yugoslavia the Law of 28 December 1973 on inter-republic and international waters indicates that a classification of maritime coastal waters (as well as inter-republic watercourses) is to be established by the Federal Executive Council. This classification is to be based on the intended purposes of the waters and their qualitative characteristics (in particular, the physical, chemical, biological, and radioactive properties). In Croatia, a 1967 Ordinance establishes the following three classes of coastal waters: Class I - Maritime waters in which it is possible to breed oysters and shellfish; Class II - Maritime waters that may be used for bathing, recreation, and water sports; Class III - Other coastal waters. The parameters used for the classification are suspended matter, the coliform count, oil, hydrocarbons and hydrocarbon derivatives, visible wastes, and visible colour.

Watercourses shared by several States. (Principle 12)

This Principle deals with the taking of joint measures by two or more Contracting Parties to deal with pollution resulting from discharges from a watercourse flowing through the territories of the countries concerned or forming a boundary between them.

Existing and proposed instruments relevant to inter-State cooperation in respect to shared watercourses have been analysed in some detail by Moore.²⁷ Specific mention should be made of the following, insofar as they affect the Mediterranean drainage area: (1) the African Convention on the Conservation of Nature and Natural Resources, 1968 (Article V of this Convention prescribes that where water resources are shared by two or more Contracting States, they are to act in consultation and, if the need arises, set up inter-State commissions to deal with problems arising from the joint use of these resources); (2) the Convention on the Protection of the Waters of Lake Geneva against Pollution (this Convention came into force in November 1963; the controls it provides for are relevant to this discussion insofar as they may affect the eventual quality of the waters discharged by the Rhône into the Mediterranean); (3) the Convention between Switzerland and Italy on the Protection of Italo-Swiss Waters from Pollution (this Convention entered into force on 7 August 1973; as Moore points out, the controls it provides for are also relevant in that the River Po, which discharges into the Adriatic, is fed indirectly by waters from Lake Maggiore and Lake Lugano).

On 14 February 1974, two of the Mediterranean States, Italy and Yugoslavia, signed an Agreement on Cooperation for the Protection from Pollution of the Waters of the Adriatic Sea and Coastal Areas.²⁸ Under Article 1 of the Agreement, the two countries agree to establish close collaboration for protecting the waters concerned against pollution. Article 2 establishes a "Mixed Commission for the Protection of the Waters of the Adriatic Sea and of the Coastal Areas", details being given in Article 3 of the functions of this Commission. These are as follows: (a) examining all problems relating to pollution of the waters of the Adriatic Sea and coastal areas; (b) proposing and recommending to the Governments the investigations it deems necessary; (c) expressing its own views on bilateral programmes and ensuring their coordination; (d) proposing to the Governments the necessary measures for combating existing causes of pollution and preventing new sources; and (e) proposing to the Governments draft international regulations aimed at ensuring the purity of the waters of the Adriatic Sea. The remaining provisions of the Agreement deal largely with administrative and legal matters.

Another noteworthy agreement is the so-called RAMOGE project, which was signed on 10 May 1976 by France, Italy, and Monaco. While the text of this Agreement has never been published, some details of its substantive provisions have been described by Mariani and du Pontavice.²⁹ The original initiative for the project, which is aimed at combating water pollution in the zone between Saint Raphaël (on the French Côte d'Azur) and the Gulf of Genoa in Italy, was taken during the XXIInd Plenary Congress of the International Commission for the Scientific Exploration of the Mediterranean Sea. Initial proposals for cooperation between the three countries concerned were adopted in April 1972. These provided for the establishment of a tripartite Commission responsible for various tasks, including the following: the establishment of lists of pollutant substances and products, whose sale or distribution should be prohibited or regulated, and whose dumping into the sea should be prohibited; the harmonization of penal sanctions imposed on persons responsible for pollution; and the adoption

of a number of practical measures to be taken by communities within their respective areas of jurisdiction. Moore (in describing what is evidently a follow-up to these proposals) states that "A draft Agreement between France, Italy and Monaco on the protection of coastal waters against pollution was drawn up at a meeting in Rome at the beginning of October 1975. The draft Agreement, which takes up some of the RAMOGE proposals, envisages the establishment of a tripartite international commission charged with the functions of establishing and promoting close cooperation between the national services responsible for coastal water pollution control. The draft Agreement, which would apply to the coastline between Hyères and Genoa, has not yet been signed."³⁰

Further inter-State collaboration may be envisaged, notably in view of the initiatives of the OECD and the Council of Europe.³¹ Paragraph 4 of the Recommendations of the Inter-Parliamentary Conference of Coastal States on the Control of Pollution in the Mediterranean Sea recommends that "the Parliaments and Governments of the States concerned take the necessary measures to harmonize forthwith their national legislation and statutory instruments with the appropriate provisions of /the relevant/ conventions."³² More specifically, paragraph 9 of the Recommendations of the Special Committee /of the Inter-Parliamentary Union/ for the Study of the Means to Control the Pollution of the Mediterranean Sea (adopted in Monaco in October 1975) welcomed the advanced state of the RAMOGE project and the agreement of principle concluded between Italy and Yugoslavia on joint action for the preservation of the Adriatic Sea, recommended that the Inter-Parliamentary Groups of the countries concerned encourage their Governments to make them operational as soon as possible, and expressed the wish that similar initiatives be taken in other regions of the Mediterranean with the help of the competent international organizations.³³ Finally, one of the proposals formulated at a Seminar on the Protection of Coastal Waters against Pollution from Land-based Sources (held in Lisbon in November 1975 under the auspices of the United Nations Economic Commission for Europe) was that ECE Governments should "... harmonize their national regulations concerning water protection to the extent possible, either through bilateral or multilateral negotiations with other ECE countries, in order to facilitate international cooperation."³⁴

Of major importance for the problem of anti-pollution measures relating to shared watercourses is the work currently being carried out by the UNEP Intergovernmental Working Group of Experts on Natural Resources Shared by Two or More States, which is preparing draft principles of conduct in the environmental field for the guidance of States in the conservation and harmonious exploitation of such natural resources.³⁵

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