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Convened by UNEP and organized in co-operation with CEFIGRE

ELEMENTS OF A REGIONAL CO-OPERATION PROGRAMME FOR WATER RESOURCES MANAGEMENT IN THE MEDITERRANEAN REGION

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* Revised to take into account the amendments and recommendations of the Meeting of Experts on Fresh Water Resources Management in the Mediterranean Region, Cannes, France, 25-29 April 1978, convened by UNEP and organized in co-operation with CEFIGRE.

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INTRODUCTION

1. At the Intergovernmental Meeting of Mediterranean Coastal States held at Split, Yugoslavia, in February 1977, the Governments represented adopted the draft "Blue Plan" and expressed the wish that a priority actions programme should be launched as soon as possible, the water resources of the Mediterranean basin being indicated as one of the first priorities. 1/

2. Accordingly, under the first phase of the Blue Plan, terms of reference entitled "Survey on Fresh Water in the Mediterranean Basin" were drawn up with a view to exploring the present situation and identifying trends determined by the various components of development. The terms of reference, submitted to the Intergovernmental Review Meeting of Mediterranean Coastal States on the Mediterranean Action Plan (Monaco, January 1978), were amended and improved by a Meeting of Experts on Fresh Water Resources Management in the Mediterranean Region (Cannes, 25-29 April 1978).

3. At the Monaco meeting, the Governments represented asked that a priority actions programme, relating in particular to water resources management, should be formulated at the same time. UNDP, for its part, expressed interest in this request and indicated its preparedness to give favourable consideration and to contribute to a regional co-operation programme in this area. Such a programme should, moreover, receive support from certain countries in accordance with their technical and financial capabilities.

4. The Meeting of Experts on Fresh Water Resources Management in the Mediterranean Region (Cannes, April 1978), in addition to considering the terms of reference on water resources in the Mediterranean Basin, 2/ examined and discussed a working document entitled "Elements of a regional co-operation programme for fresh water resources management in the Mediterranean region". This document was supported by background papers and by a number of statements prepared in advance by experts. The background papers were the following:

Proposals for the organization of training programmes for trainees from Mediterranean developing countries (UNEP/WG.16/INF.7);

Proposals for pilot experiments concerning appropriate technologies in the field of water resources in the Mediterranean region (UNEP/WG.16/INF.8);

Consultations on the need for an information system on fresh water resources in the Mediterranean region;

1/ Six priority areas were designated in the following order: protection of soil, management of water resources, marine living resources, human settlements, tourism, and soft technologies for energy, including solar energy.

2/ Hereinafter called the "Basin".

Case studies in fresh-water management in the Mediterranean region: technical, economic and institutional aspects.

The statements concerned the following subjects:

Techniques for efficient use of water;

Economy and institutions;

Natural environment and human development (in the Rhone basin, for example);

Management in an agricultural type of economy (that of Tunisia, for example);

Effects of development of the Nile;

Water and insularity;

Water demand and disposal demand;

Water, industry and energy.

5. This document takes into account the results of the debate and reflects the opinion of the Meeting of Experts. As drawn up, the regional co-operation programme for water resources management in the Mediterranean (hereinafter called the Programme), reflects the consensus of opinion of the Meeting of Experts of the coastal States with regard to priorities and to the content of each component of the Programme.

OBJECTIVES

Long-term objective

6. In the spirit of the Mediterranean Action Plan, to promote in water matters the solidarity and co-operation that are indispensable for the preservation of the natural environment, which implies water resources management compatible with the necessary social and economic development and the protection of the natural heritage.

Immediate objectives

7. (i) In the preliminary stage, to identify and formulate joint and co-operative activities calling for priority action, either regional at the level of the entire Basin, multilateral (inter-State) or bilateral;

(ii) In the main stage of the Programme, to implement priority activities and bring them to completion.

Geographical coverage

8. For the purposes of the Mediterannean Action Plan (MAP), the Mediterranean basin comprises the Mediterranean Sea (excluding the Sea of Marmara and the Black Sea) and its islands and littoral. The countries involved in MAP are the 18 coastal States. 1/

9. The basin so defined (see the attached map) represents a total area of 4.3 million km^2, 2.5 million km^2 of which are marine. Depending on the requirements of the Programme, the continental area will embrace three overlapping zones:

A maximum zone, bounded by the natural limit of the catchment areas;

An intermediate zone, with a conventional boundary determined by States in accordance with a typically Mediterranean natural environment;

A restricted zone - usually the coastal zone - containing the areas in which constraints are concentrated.

Basic data

10. The Mediterranean basin comprises the sea and its littoral. The Mediterranean Sea, excluding the Sea of Marmara and the Black Sea, covers an area of 2.5 million km^2; its volume is 3.7 million km^3, 2/ with a renewal period of 80 years, its average depth is 1,500 metres, with maxima at 5,000 metres, and it extends for 3,800 km from east to west. It possesses three major shelves, at the Strait of Gibraltar (365 m deep), the Sicilian Channel (350 m deep) and the Dardanelles (100 m deep) respectively. The first (15 km wide) separates it from the Atlantic Ocean and makes it a virtually closed continental sea; the second divides it into a western and an eastern basin; and the third separates it from the Sea of Marmara and the Black Sea. The mean salinity is 38,000 ppm (by comparison with 35,000 ppm for the Atlantic Ocean and even less for the Black Sea). The Mediterranean contributes to the formulation of continental fresh water by evaporation (an estimated average of 1,440 mm/yr), particularly on the littoral. Conversely, it receives an estimated 470 mm/yr of fresh water by direct precipitation and from watercourses. Evaporation and precipitation at sea are poorly understood, however. Information is also lacking about the contribution of coastal and submarine ground water, which is certainly not insignificant, and of deep-sea hydro-thermal inflows. Nevertheless, despite these uncertainties and lacunae, the Mediterranean Sea is currently regarded as a debtor item in the balance of the fresh-water cycle, 3/ with losses of 5,000 km^3/yr as against gains of 1,700 km^3/yr. This concept requires serious reappraisal and a different presentation if the existing imbalances are to be properly identified and their future evolution studied.

1/ In geographical order, starting from the south-west: Morocco, Algeria, Tunisia, Malta, Libya, Cyprus, Egypt, Israel, Lebanon, Syria, Turkey, Greece, Albania, Yugoslavia, Italy, Monaco, France, Spain.

2/ km^3: 1 billion cubic metres.

3/ The deficit is largely offset by water from the Atlantic Ocean which enters through the Strait of Gibraltar.

11. The northern littoral of the Mediterranean and the islands are fairly well watered by precipitation (400-1,000 mm/yr) and by the hydrographical network, many of whose rivers are perennial and show considerable seasonable variation. Roughly speaking, every inhabitant of this area had potential water resources of 2,000 m^3/yr available to him in 1975, whereas he used only 400 m^3/yr under optimum management conditions. The southern littoral of the Mediterranean on the other hand is mainly arid, with a precipitation of less than 100 mm/yr, except in North Africa (300-800 mm/yr); it has a very poor hydrographic network apart from the Nile Delta and a few North African rivers. Outside these relatively privileged areas, potential water resources rarely exceed 100 m^3/yr per inhabitant. As regards the littoral as a whole, the hydrometeorological data can be described as average to very good, but the hydrological data in general do not afford scope for valid historical comparisons, except in the case of the major basins.

12. The Mediterranean littoral consists almost entirely of sedimentary rocks, most of which constitute ground-water reservoirs. These reservoirs can play several roles: seasonal regulation of surface water; year-to-year regulation in years of heavy rainfall; water supply and provision of large-scale natural distribution networks; drought reserve; reduction, dilution or transmission of pollution; storage of surplus water by artificial replenishment; and hidden communication with the sea by means of coastal and submarine springs or, conversely, by marine inversion. The reservoirs in question deserve close attention for all the above reasons. Considerable hydrogeological information was to hand on most of them in 1975 and, generally speaking, the available data are of good quality. Mention should be made of the ground water found in karstick terrain, since calcereous rocks occupy a substantial proportion of the Mediterranean littoral where there is intense circulation. These reservoirs have their outlet in unregulated fresh-water springs of the vauclusian kind, both coastal and submarine; the water is often brackish, especially when discharge is low. Technology for the abstraction, use and management of water from these reservoirs is still backward and, as far as submarine springs are concerned, non-existent. Yet losses are estimated at more than 3 km^3/yr.

13. During the last 30 years, considerable work has been done on water resource inventories throughout the littoral, with particular emphasis on ground water, whereas resources management and development has concentrated mainly on surface water. In the past decade, water development action has been extended to ground water, largely through the initiative of the private sector. In all coastal States, continental water is "lost to the sea" as soon as it reaches the coast; a loss from their point of view, but a gain for the sea. Basically, therefore, the strategy of States is gradually to reduce these losses, mainly by building surface reservoirs but also by utilizing the water supply and storage role of underground reservoirs. With steadily rising consumption, this ultimately reduces the amount of fresh water reaching the sea; since evaporation remains constant, there is a growing and increasingly noticeable imbalance in the fresh water cycle, which is constantly shrinking.

14. Water shortage is an endemic phenomenon of the Mediterranean littoral. It is seasonal (July to September), for climatic reasons, and can assume dramatic dimensions in certain "dry" years, one or two of which occur every decade. In some countries, because of the deficit in the balance between requirements and resources, drought has become a permanent phenomenon; in others, the crisis is close. Yet water cannot be transported like wheat from countries that are rich in water to those that lack it. Droughts first appear locally, in coastal basins

which receive a seasonal population influx in a low-water period. In these cases, the demands of national solidarity have already made themselves felt in some countries in the form of interbasin transfers or use of the costly technique of sea-water desalination. However, in view of the rapid expansion of water needs and the relative poverty of certain coastal States, co-operation is necessary at the level of the entire Mediterranean basin. Inter-State transfers, even of water, should no longer be a Utopian concept, but in order to plead the cause of Mediterranean solidarity a well-founded brief is needed in the form of a national water plan.

15. Such a plan necessitates above all a forecasting analysis of water supply problems at the national level. An analysis of this kind must answer the questions of both planners and decision-makers. These are as follows: if demographic, economic, environmental protection and technological trends take this or that direction, what problems will arise, and when and why? In these circumstances, what are the various co-ordinated measures and activities that could overcome the difficulties? In other words, the results of the forecasting analysis or "water strategy" serve to facilitate the choice of a plan for water resources management and water quality protection. To judge from the evidence, very few Mediterranean coastal States have embarked on this course.

DESCRIPTION OF THE PROGRAMME

The need for a Mediterranean water policy

16. Surface water management has been the predominant feature hitherto, following closely on the collection of satisfactory hydrological data. There are now few coastal States without an acceptable observation network for main surface drainage. Surface water development has benefited everywhere from widespread action in the public sector, to the point that action to develop ground water, although the latter is abundant in the Mediterranean basin, has been neglected.

17. However, the water knowledge now available points to crucial eventualities which for several coastal States will represent a slowing-down, and then a complete halt, in development in the next 20 years unless water policy is reconsidered. In the present climate of opinion, the policy is one of expansion at all costs, especially through increases in the area under irrigation. Moreover, priority continues to be given to urban domestic supplies and industrial uses in which the proportion of water wasted increases step-by-step with excessive demand, while waste water is almost totally neglected.

18. A change of policy is clearly needed in order to stave off the crucial situation predicted above. The idea of extending irrigated areas must give way to a policy of using the areas at present under irrigation more intensively and of selecting crops that require the least amount of water. A water saving policy based on more efficient methods and techniques must accompany water resources management. Henceforth, the water policy of the Mediterranean basin should lay stress on water management and the prevention of waste.

19. Most coastal States will have to give greater attention to teaching, and particularly to the training of high-level specialists and even research, which should focus primarily on chronic and cyclic shortages. More effective use must be made of the specialized institutions existing in the Mediterranean, since they are best equipped to deal with local conditions. In the same context,

professional staff must be trained as far as possible in and by the countries concerned, either with or without guidance from the leading specialists of the Mediterranean basin.

20. Water co-operation in the Mediterranean basin should grow through the facilitation and provision of free access to advanced technology and through exchange of experience, even where such experience results from mistakes and technical errors. In particular, the efficiency achieved in irrigated plant farming is of fundamental importance. A policy of co-operation calls for the adoption throughout the basin of joint methods of collecting, storing and retrieving data and information on surface and ground water, both qualitative and quantitative, and on its present and proposed uses. With this in mind, some countries have recommended the creation of a special fund to finance a world information bank, which would be the starting-point for a programme of technical assistance. As a step in this direction, it is proposed to implement this recommendation in the Mediterranean basin, which would be the first phase of this project.

Criteria employed in formulating the Programme

21. The following criteria have been taken into account:

Mediterranean experience acquired by UNDP in its operations since 1958;

The wishes and recommendations of States, as expressed at the United Nations Water Conference at Mar del Plata (March 1977);

Recommendations of the Intergovernmental Meeting of Mediterranean Coastal States on the Blue Plan (Split, Yugoslavia, February 1977);

Recommendations of the Intergovernmental Review Meeting of Mediterranean Coastal States on the Mediterranean Action Plan (Monaco, January 1978).

At the present stage of preparation, the requests and primary concerns of coastal States in the matter of water resources management have been put forward only through the views expressed by the Meeting of Experts from coastal States (Cannes, April 1978).

22. After extensive individual consultation, the Meeting of Experts agreed on a number of priority measures and established the order of priority. Some of them concern the entire Basin and are called "regional"; others concern several coastal States and are called "multilateral" (inter-State); still others are limited to two States and are called "bilateral"; and finally, some measures taken at the national level may be of great interest at the regional level. The programme is thus presented under these four categories and, in the case of regional and multilateral measures, according to the order of priority established by the Meeting of Experts. Each priority measure bears the symbol MED/WATER followed by a number.

23. In this preliminary identification phase, the Programme submitted is still at the stage of ideas and planning and its main object is to give a content to each measure. Formulation, including the necessary means of action, will be considered later. What is involved, at the moment, is an outline of a programme.

Outline of a Priority Actions Programme

(i) Regional measures

24. MED/WATER 1. Training of professional staff in water management and collection of water resources data

Consideration of the work of existing training centres for professional staff and their cultural policy with respect to requirements for training professional staff in the various coastal countries;

Identification of bodies which are competent in the field of water resources management and whose effective policy and international or Mediterranean orientation guarantee the best training;

Co-ordination of the work of training centres sponsored by organizations within the United Nations system;

Arranging for the training of professional staff as far as possible in and by the coastal countries concerned, with or without the advice of the best specialists on the Mediterranean basin;

Determination of the various levels of professional staff capable of being trained;

Organization of training courses for citizens of coastal countries by inviting the officials of those countries to reply to the questionnaire contained in background paper UNEP/WG.16/INF.7.

25. MED/WATER 2. Exchange of methods and techniques for efficient water use

Definition of the concept of "efficient water use", which encompasses several ideas: management of demand by reducing consumption, matching supply to demand in terms of quality and ensuring the optimum utilization of existing resources; the more efficient use of water in terms of economic and social effect; efficiency in terms of social and economic criteria;

Preparation of an inventory of on-going or completed projects involving coastal States in the Basin that are deemed particularly suitable for an exchange of information, but without excluding methods and techniques developed and tested outside the Basin. The list should also include research projects that would permit the spread and introduction of the techniques best suited to the implementation of water projects;

Description of the methods and/or techniques used in each of the projects listed and of the conditions of their use within the framework of multiple-criteria decisions; these decisions take account of the advantages and disadvantages of these techniques against the background of an over-all development of resources and a compromise between various needs;

In illustration of the inventory of particularly suitable projects and research projects concerning the Basin (second paragraph) there follows an initial list, which is not exhaustive and is given for guidance only:

Water demand and disposal demand in major urban centres (in Athens, for example);

Efficient irrigation methods: drip system, sprinklers of various kinds, regulating mechanisms, use of brackish water;

Methods and devices for reducing domestic consumption;

Coastal collectors for groundwater lost to the sea;

Salt-water and brackish-water desalination on a large or small scale;

Formulation of a national or regional water plan (by basin);

Artificial replenishment of underground reservoirs;

Hydrological forecasting of cyclic shortages;

Remote sensing: aerial, infra-red and satellite photographs;

Tapping of coastal and submarine sources;

Control and reduction of coastal pollution (in the Gulf of Naples, for example);

Regional water-distribution network (southern Italy, Israel);

Use of systems analysis to evaluate the best water-resources management policies (by Cassa per il Mezzogiorno, Italy, for example);

Methodological aspects of water-resources management and specific problems related to pollution control in major river basins (Po, Tiber, Rhone);

Identification and application of appropriate means of exchanging technology, such as: technical visits, study trips, courses, working groups or discussion and research seminars, state-of-the-art reports, etc.;

Planning and launching of a promotional campaign geared to the Basin that would underline the importance of human behaviour, education and the training both of specialists and of the public, and would increase public awareness more of the quality of water and its impact on future supplies and the protection of the environment than of the quantity, of which people have been aware since ancient times. This promotional campaign would be the prelude to an operational phase of pilot experiments directed towards the introduction of appropriate technologies in the Mediterranean region;

Formulation of priority project MED/WATER 2 on the basis of document UNEP/WG.16/INF.8.

26. MED/WATER 3. Information system on water resources in the Mediterranean basin

The information acquired and collected on the water resources of the Basin is among the richest in the world. However, the exchange of this information has remained unreliable. It would seem appropriate to decide upon the structure of an information system for use by all coastal countries; such a system could in itself generate a programme of mutual assistance, but it is important to proceed with care.

The first step would be to set up a small-scale information service to provide information upon request; the service would have limited means at its disposal and would endeavour to encourage requests for information and to provide information on a few priority areas of activity. Its tasks would include:

Providing technical and practical support for the analysis of final reports on UNDP projects carried out over the past 20 years and published national documents of all kinds, in order to identify and extract acquired knowledge with a view to applying it in practice;

Drawing up an inventory of documentation and information resources available in the coastal countries;

Supplying information, either systematically or upon request, and channelling requests for information to competent information services;

Studying possible information systems and choosing an appropriate one.

Priority project MED/WATER 3 will be formulated on the basis of document UNEP/WG.16/INF.9.

27. MED/WATER 4. Re-use of waste water from urban sanitation, industrial effluents or drainage

At present, methods of re-using waste water are being developed or put into practice in various coastal countries. The waste water comes from urban sanitation, industrial effluents or drainage. Attempts are being made in agriculture to irrigate and fertilize land and in industry to satisfy the demand for water; in aquaculture, various experiments are under way, including experiments related to the re-use of thermal discharges from power stations; in the field of economic water-resources management, waste water is re-used for the artificial replenishment of water tables. In its programme for 1977-1981, the Commission of the European Communities (CEC) is undertaking studies concerning the re-use of waste water in the geographical area with which it is concerned. There is clearly an even greater need for such measures in coastal countries in the southern and eastern regions of the Basin, where water resources are most severely limited.

The preliminary, Basin-wide phase would involve:

Taking stock of the work and research undertaken in coastal countries;

Establishing criteria, including health criteria, for the quality of re-usable water;

Establishing the links essential to co-operation;

Developing and formulating a "co-operative" programme or project.

28. MED/WATER 5. Feasibility studies concerning chronic or cyclic water shortages in the Mediterranean basin

Events and circumstances in recent decades have shown that crises stemming from water shortages are imminent in the Mediterranean basin. Economic action is as important for reducing the severity of these crises as technical measures.

The feasibility of such action should therefore be examined without delay. Initially, it will be confined to a critical analysis of the elements constituting the problem and an initial estimate of financial resources. However, depending on the results obtained, certain feasibility studies could lead to priority action and projects. Such studies must above all: (a) determine the criteria for selecting investments in the field of water resources; (b) evaluate alternative projects in the light of budgetary constraints; (c) survey the cost and value of water in different social and cultural environments. The most important of these feasibility studies would be concerned with:

The management of chronic and cyclic shortages;

The carriage of fresh water by sea in the Mediterranean (with a market survey).

29. MED/WATER 6. Remote sensing of evolutionary phenomena connected with water resources and their relationship with the sea

Remote sensing by such methods as aerial, infra-red and satellite photography contributes to a broader understanding of evolutionary phenomena connected with water resources. It makes it possible, inter alia, to compare the activity of the hydrographic network in the wet and dry seasons, to follow the progress of erosion and its apparent effects at sea, to evaluate the extent and effects of floods and droughts, and to monitor in real time the qualitative aspects of coastal waters. There are specialized remote-sensing services in the Basin of which use could be made.

In the preliminary phase it would be appropriate to:

Locate and evaluate the information already obtained by remote sensing and determine the bodies and services capable of contributing to data interpretation;

Consider co-ordinating the activities now taking place in the Basin;

Identify the facilities and advantages offered by the various remote-sensing techniques and particularly by the use of satellite photography, which is an efficient and inexpensive means of studying evolutionary phenomena;

Plan and formulate an economical project for the use of sensing adapted to the operational objectives and needs of the survey on the water resources of the Basin and priority activities in water resources management in the Basin.

30. Comments on regional activities

In addition to the six priority measures considered, discussed and approved by the Meeting of Experts at Cannes (April 1978), the following were mentioned, but not considered or discussed:

Preparation of a code of conduct for the discharge of liquid residues;

Survey on present sewage discharges and treatment stations in the Mediterranean with a view to devising a common approach in the Basin;

Rational water management in the coastal zone of the eastern and southern Mediterranean with a view to conserving water and protecting the quality of water;

Development of a model showing the impact of waste on the marine environment of the Mediterranean.

(ii) Multilateral (inter-State) programmes

31. MED/WATER 7. Island water supplies

A project of this kind would seem to be of interest to Malta, Cyprus, Greece, Yugoslavia, France and Spain. The question is a difficult one and a matter of concern in each country; it is often considered, sometimes in a makeshift way, but is not usually solved satisfactorily. A Mediterranean-wide programme is required. The need for such a programme has already been felt by the Commission of the European Communities (CEC), which included the question among its priorities in the 1977-1981 study programme covering the geographical area with which the Commission is concerned.

It is suggested that the preliminary phase should consist of:

Planning, from the very outset, for multiple-input co-operation and the preparation of a joint programme;

Analysis of the situation in each country and identification of common problems susceptible to joint solutions or conducive to international solidarity;

Application of the results of the seminar on "water problems in islands with special regard to desalination and groundwater", with a view to implementing specific measures;

Examination of the extent to which the carriage of fresh water by sea in the Mediterranean could make an effective contribution, using the results of project MED/WATER 5;

Preparation of a programme of co-operation.

32. MED/WATER 8. Tapping of coastal and submarine sources

A project of this kind would seem to be of interest to Morocco, Libya, Lebanon, Turkey, Greece, Yugoslavia, Malta, Italy and France. The sources in question consist of groundwater flowing into the sea, usually from karstic reservoirs; run-off takes place either along the coastline or on the sea-bed; coastal and submarine sources producing truly fresh water are very rare and in most cases, the water is brackish, since it is partly sea-water; the water must therefore be tapped before it becomes mixed with salt water in order to ensure that it is fresh. Thus, to avoid any ambiguity, the title should read: "Tapping of fresh water flowing into the sea from coastal aquifers before it becomes mixed with salt water". This topic has been of growing interest for nearly two decades and deserves special treatment. The methods and techniques used to tap fresh water in this way are still rudimentary; practical experiments have been conducted in Greece, Yugoslavia and France, but the results of these experiments still have to be evaluated from the technical and economic points of view before any new experiments are undertaken in the Basin.

At this stage, solidarity among Basin countries is required for joint action, the purposes of which could be to:

Prepare a report on the situation in this area;

Form a working group composed of experts who have participated in the planning or implementation of tapping operations in the Mediterranean area and experts from interested coastal countries;

Through the working group, analyse the situation in each coastal country and plan practical operations suited to local conditions and based on experience gained.

This last operation could lead to priority action at the national level and a regional priority action programme.

(iii) Bilateral programmes

33. A comment, prompted by the attitude taken by States at the United Nations Water Conference at Mar del Plata, needs to be made. There was unanimous agreement that the sharing of water resources common to two countries should be regulated by bilateral negotiations. Certain aspects of bilateral agreements, however, seem to require international assistance, as in the case of transfers of pollution or aspects of water legislation in which specialists with a world-wide reputation can make an outstanding contribution in the preparation of protocols. Aspects such as these might be taken into account provided that States so request.

(iv) National programmes of regional interest

34. MED/WATER 9. Consultations on national water strategies

As already mentioned (para. 22), some measures taken at the national level may be of great interest at the regional level. In this context, the national water strategy of each coastal State is of major value, especially as regards the portion relating to the Mediterranean basin. This national water strategy is at different stages of preparation in the coastal States and in some cases preparations are not sufficiently far advanced for the regional implications of such strategies to be discerned. Without going so far as to draw up a national water plan, it would be desirable for each coastal State to have a water strategy which would allow a study to be made on the likely consequences at the Basin level. Although a water strategy is a strictly national matter, action should be taken at the regional level to promote support for such a study. However, it is necessary to proceed cautiously, by means of consultations among the coastal States. In a preliminary phase, it is suggested that:

A seminar for consultations among the coastal States should be organized to analyse the question, exchange information and point out apparent gaps of regional interest;

In the light of this seminar, decisions should be taken on the measures which are desirable at the regional and national levels.

ORGANIZATION OF THE PROGRAMME

35. Duration

This will vary according to the activities considered. The over-all duration should not exceed three years. However, such a programme will give rise to other activities, in the form either of extensions or of follow-up action.

36. Financing

Since the Priority Actions Programme for water is an integral part of the Mediterranean Action Plan (MAP), sponsored and co-ordinated by UNEP, it is suggested that UNEP, in consultation with UNDP and the Governments of the coastal States and with other organizations concerned, should seek means for financing the proposed programme.

37. Procedure

It is recommended that the Programme should be executed by using the proved structural links already employed, in regard to co-ordination and operations, for other activities sponsored and co-ordinated by UNEP under MAP. In particular, it is suggested that:

(a) Technical focal points specializing in water matters should be established in each country;

(b) A regional co-ordinating organization specializing in water management should be selected.

Technical relations will be established between the technical focal points of States and the regional co-ordinating organization, while other relations will be established directly with UNEP.

38. Liaison and co-ordination centre

Some activities might be carried out by those countries which have the most experience or are most willing to undertake a particular activity. However, the necessary co-ordination (see paragraph 37 above) requires that a liaison base be chosen.

RECAPITULATION OF THE OUTLINE OF A PRIORITY ACTIONS PROGRAMME

(i) Regional measures

MED/WATER 1. Training of professional staff in water management and collection of water resources data.

MED/WATER 2. Exchange of methods and techniques for efficient water use.

MED/WATER 3. Information system on water resources in the Mediterranean basin.

MED/WATER 4. Re-use of waste water from urban sanitation, industrial effluents or drainage.

MED/WATER 5. Feasibility studies concerning chronic or cyclic water shortages in the Mediterranean basin.

MED/WATER 6. Remote sensing of evolutionary phenomena connected with water resources and their relationship with the sea.

(ii) Multilateral (inter-State) programmes

MED/WATER 7. Island water supplies.

MED/WATER 8. Tapping of coastal and submarine sources.

(iii) Bilateral programmes

For information.

(iv) National programmes of regional interest

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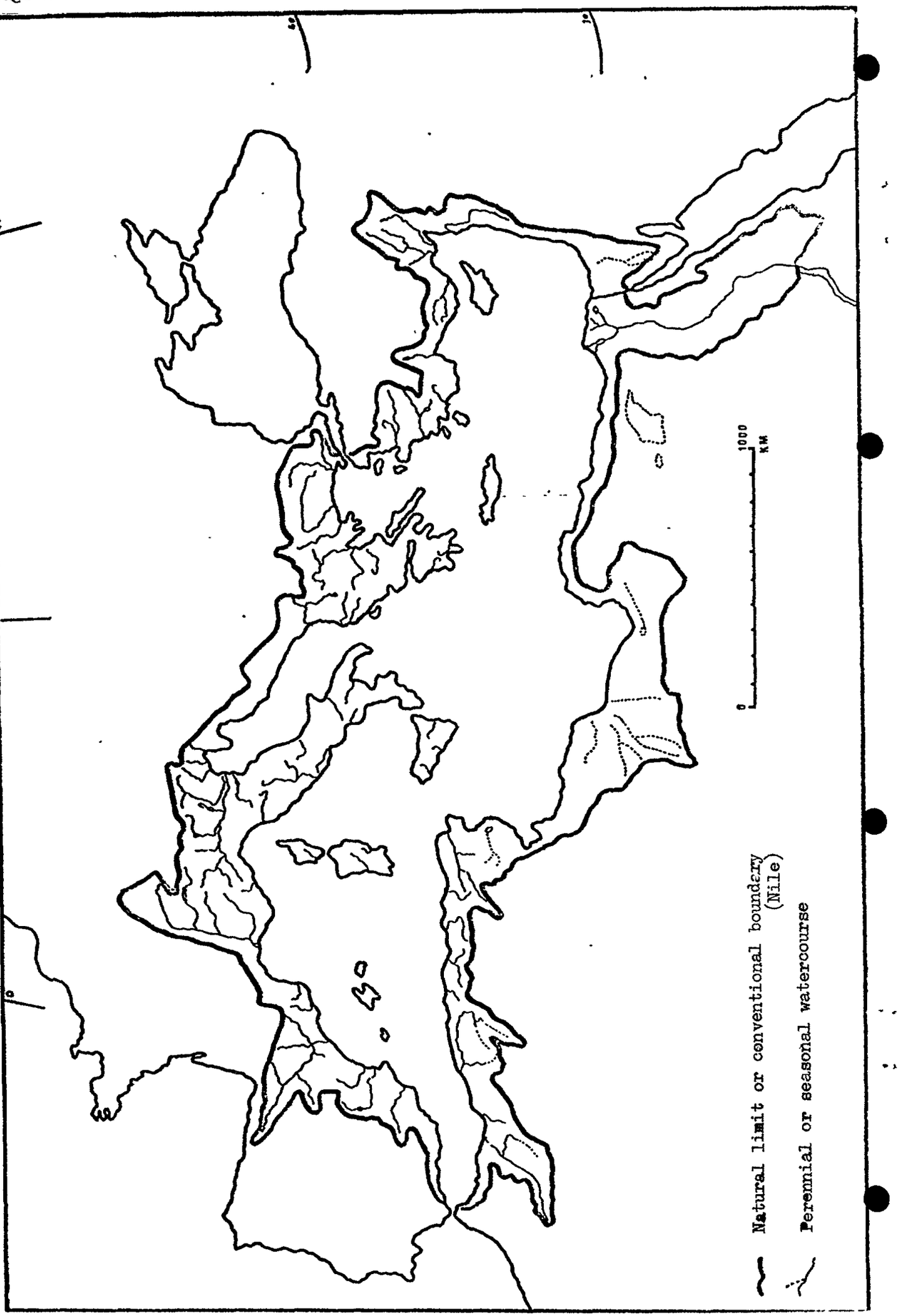
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