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**MEDITERRANEAN ACTION PLAN**

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**ADOPTED RECOMMENDATIONS OF THE MEDITERRANEAN COMMISSION ON  
SUSTAINABLE DEVELOPMENT ON “MANAGEMENT OF WATER DEMAND”  
AND “SUSTAINABLE MANAGEMENT OF COASTAL ZONES”**

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**MEDITERRANEAN COMMISSION ON SUSTAINABLE DEVELOPMENT  
RECOMMENDATIONS CONCERNING THE MANAGEMENT OF WATER DEMAND AND  
THE SUSTAINABLE MANAGEMENT OF COASTAL ZONES**

**A. RECOMMENDATIONS ON THE MANAGEMENT OF WATER DEMAND**

The field of the management of water demand is one in which the most significant progress can be expected as regards water policies in the Mediterranean Basin. For the Mediterranean Commission on Sustainable Development, controlling the demand for water has become a priority political objective.

**General Orientation**

In most Mediterranean countries, the actual consumption of water is fast approaching the limits of resources available. The water shortages now emerging, whether circumstantial or structural, will undoubtedly spread and worsen over the coming decades. These shortages are due to the heavy increase in water demand. This demand has globally increased over the last quarter of a century by 60%.

Traditionally, this situation has been met by simply increasing the supply. But today this solution is nearing its limits. Mobilising extra resources is encountering obstacles of a social, economic or ecological order.

The time has arrived for water management to approach the equation from the other side by an effective management of the demand. Demand management and supply management with its potential improvement are to be done in an integrated manner.

This obvious fact and the recommendations which follow are thus dictated by the need to manage water demand in the Mediterranean region.

- C Such policies need to be targeted to the various uses and users and be part of integrated water management policies, characterized by the setting of specific quantified targets to be achieved within defined time periods. The policies should be constant and on-going , as well as be characterized by appropriate performance monitoring systems.
- C This approach must take into account the increasing demand for water coming from populations in both town and country areas, particularly as regards drinking water, but one must not forget the claims of social justice.
- C In the adoption, or the modification of economic development policies in all sectors, due consideration should be given, at a strategic level, to their potential impacts on the realization or not of the integrated water management policy and on how they will affect water demand. Such development policies should be appropriately adapted si as not to negatively affect the overriding need to reduce water demands.

**Approach for Common Understanding and Recommendations**

in the face of these findings, the MCSD has decided to devote 1997 among other short term priorities to studying the subject of water from the angle of demand management.

## THE OBJECTIVES

The overall objective of this approach is to control demand within the broader strategic objective of sustainable water management in the Mediterranean. This objective breaks down into four points :

- C specifying the characteristics of water use systems with the strong points and the malfunctioning or inconsistencies inherent in the systems adopted;
- C identifying the socio-economic, institutional, legal and technical obstacles that hinder or prevent sustainable management of demand as well as their respective importance;
- C making a precise assessment of the water saving that could be achieved and estimate the efficiency and cost of this in terms of technical and economic feasibility;
- C identifying the socio-cultural, economic, institutional, legal and technical measures to be taken to remedy the defects and eliminate the obstacles to good water-demand management, so as to prevent shortages in the future.

### The Approach Followed

A PRIMA FACIE ANALYSIS OF THE SITUATIONS OF THE 21 COUNTRIES AND ENTITIES RIPARIAN OF THE MEDITERRANEAN,

made it possible to situate these countries and entities in four groups all having a relatively similar situation in regard to the risk of shortages threatening them and to the future and present water demand:

1. **Group 1: countries where there is no risk of shortages even beyond the year 2025** (Albania, Bosnia and Herzegovina, Croatia, France, Greece, Italy, Monaco, Slovenia, and Turkey);
2. **Group 2: countries where there is an occasional, more or less local, risk of shortages** (Cyprus, Lebanon, Morocco, Spain, Syrian Arab Republic);
3. **Group 3: countries where there will be occasional or structural shortages from the year 2000 despite present low demand for water** (Algeria, Israel, Malta, Palestinian Authority, Tunisia);
4. **Group 4: countries where there will be structural shortages from the year 2000, exacerbated by high demand for water** (Egypt, Libyan Arab Jamahiriya).

## THE INFORMATION ON WATER DEMANDS AND SYSTEMS OF WATER USE,

was collected from national experts through questionnaires and is presented in three reference documents that objectively clarify the context of the Mediterranean countries.

1. **Problems of water demand management in Mediterranean countries.** This introductory study reiterates the objectives, methods, means and tools of demand management, as well as approaches to assessing the feasibility of the water conservation predicted.
2. **Summary of country information sheets.** This represents an effort to improve, harmonize and update information on water use in Mediterranean countries.
3. **Compendium "Principal criteria and statistics relating to water demand in the Mediterranean",** which completes the summary by showing the most important figures available.

## A WORKSHOP TO DISCUSS THE FINDINGS AND THE MEANS FOR BETTER MANAGEMENT OF WATER DEMANDS,

gathered experts and officials from 16 countries and 14 intergovernmental or non-governmental organizations, private firms and local authorities in Frejus (France), the 12-13 September 1997. The orientations of the discussions are provided in the **Framework document** of the workshop, and the **Summary record** details proposals, conclusions and general recommendations.

## A SHARED ASSESSMENT

The findings brought to the attention of the community responsible for designing and implementing water policies in the Mediterranean lead them to highlight five main points.

### 1. ECOSYSTEMS ARE USERS IN THEIR OWN RIGHTS

The environmental demand for water by natural systems is an essential aspect of water demand in the Mediterranean.

Water withdrawal from natural media must respect the maintenance of an "acceptable minimum level" for the ecological conservation of ecosystems, which are also users in their own right;

### 2. WATER USE SYSTEMS ARE FAR FROM PERFECT

A large part of the water extracted appears to be badly or little used in most Mediterranean countries.

- c At least one third of the volume of water produced and distributed as drinking water in towns and villages leaks out through the network or is wasted by misuse.

- C Almost one half of the volume of water supplied for irrigation is lost through leakage during transport, badly adjusted modes of supply to the fields, low efficiency of the irrigation systems, and choice of overly water consuming crops.
- C Many industries, with defects in recycling, leakage and loss, and inefficient production processes, withdraw volumes of water that far exceed their needs, lowering its quality.

### 3. CLEARLY IDENTIFIED CAUSES

Three fields are involved:

- C Legislative and political: the concept of demand management has not been incorporated in all planning action and legislation because, for historical reasons, some countries lagged behind, but the balance of power is changing;
- C Socio-economic: water start to move from being seen as a natural asset to a rare economic asset, a product. But water also has social, cultural and environmental aspects that must be preserved. Awareness of this development is not sufficiently widespread among all actors in the water economy.
- C Technological: in general, the technology exists, but it is not always utilized. At the present time, not every country has access to the most modern technology.

Defects in water demand management lead to loss of resources, both in terms of quantity and quality, as well as economic losses, and consequently lower profitability.

The volume of water lost or wasted is an unexploited “ water bank ” . Therefore water demand management will be more efficient than other water supply alternatives. The possibility of saving water must be considered at each stage of water management, from extracting the water for use to the discharge of wastewater into the environment. Demand management should focus principally on the weakest link in the chain of use.

### 4. AN UNEXPLORED “WATER BANK”

For all the Mediterranean countries, a preliminary estimate of the amount of water that could be saved by more rational management of use and consecutive lower demand shows a significant volume (75.5 km<sup>3</sup>/year) compared with the additional water to be supplied to cover growth in demand forecast for the next twenty to thirty years (+ 85 km<sup>3</sup>/year for the year 2010 on a high hypothesis, and + 148 km<sup>3</sup> in 2025).

- C the most beneficial savings in terms of volume would be in the irrigation sector : reduced losses during transport together with greater efficiency (71 per cent of the total, more than half of which due to improved efficiency),
- C next in order of importance comes better recycling by industry (18 per cent),
- C then reduction of loss, leakage and wastage of drinking water in local communities (10 per cent), although these would be of greater value in view of the higher cost of producing and distributing drinking water.

## 5. POSSIBLE IMPROVEMENTS

It is technically possible to conserve a large part of the water lost or wasted and this would cost a lot less than the cost of providing new supplies to cover future additional needs.

Water demand management thus seeks both to reduce “non-use” of water extracted or produced and “misuse”, in other words, material and/or economic wastage under both aspects. These comprise: practical defects in use systems (loss, leaks, lack of efficiency), unnecessary or superfluous use, excessive use of high-quality water when a lower quality would suffice, badly chosen use and reuse, defects downstream of use . It is necessary simultaneously:

- C to reduce demand or at least slow down its increase;
- C to harmonize demand and supply possibilities as far as possible;
- C to coordinate and maximize multiple uses of limited water resources;
- C to alter the factors governing water requirements and adapt the sectoral structure of water use, promoting the most effective.

Water demand management utilizes means that differ according to the type of defect to be remedied. Certain means, particularly those of a technical nature, are direct water conservation factors; other more indirect means facilitate and govern the application of the former and affect the behaviour of the users (economic and financial, socio-cultural, legal and regulatory tools). All demand management tools should be utilized in harmony. Such a synergy enhances the effectiveness of management provided that application of the tools is coordinated by the same management authority;

Although they all have the same purpose, demand management strategies, together with the choice of priority solutions and the “orchestration” of the different management tools will depend to a large extent on the major types of defect, the competing supply/demand levels, and the socio-economic means and situation in each country.

### **Guidelines for Action**

#### ***To incorporate water demand management effectively in national water strategies, development and environmental policies.***

- C Promote effective incorporation of demand control objectives in water planning policies and in all sectoral development policies as well as water conservation policies that have an impact on water requirements:
  - *trying to set deadlines to achieve such objectives.*
- C Undertake feasibility studies on water conservation possibilities (potential savings, methods, costs, time limits, legal, financial and control criteria, etc.):
  - *evaluate more precisely the feasibility of demand control operations (volume of water to be conserved at competitive cost) under different circumstances and in different socio-economic and cultural situations.*
- C Promote investment in activities that use water as efficiently as possible (particularly in agriculture) and in industry:
  - *ensure that investment (restoring or building new networks, use methods, crop patterns) is preceded by feasibility studies on scenarios that also incorporate*

- *comparisons of the effect on demand;*
- *ensure that the recycling efforts by industry are advantageous for it.*

**1. To develop among the public, economic stakeholders, managers and decision-makers awareness of the importance of loss and waste of water, both in economic terms and in volume of water, and to awaken a sense of responsibility among users with a view to better management of water demand.**

- C Implement awareness promotion campaigns at all levels:
- *sensitizing each user about waste and water-saving opportunities, by combatting wastage through simple behaviour, illustrated by practical examples;*
  - *make people aware of the value of water and the risk of shortages, followed by medium-term and long-term action;*
  - *use the support of associations and utilize all types of audiovisual communication media, educational materials and action ("water classes") adapted to each country.*
- C Facilitate access to information on water demand:
- *provide information on water prices and charges;*
  - *utilize the active participation of expert water networks in the Mediterranean and study the possibility of facilitating exchange of information through the development of the Euro-Mediterranean information system on know-how in the water sector, agreed upon at the water management conference held in Marseille.*

**2. To improve among the public, economic stakeholders, managers and decision-makers, knowledge and evaluation of the potential advantages to be gained from more economical management of water demand, laying emphasis on total transparency.**

- C Set up mechanisms for collecting data in order to have a better knowledge of the efficiency of the networks and use systems, including by,
- *metrology (installing equipment to measure water outflow, quality, etc...). Control and maintenance of metering systems at all levels: production, distribution, consumption, are preconditions for any approach to saving water. There must be strict follow-up and maintenance policy and appropriate equipment;*
  - *more comprehensive, more precise and more regionally-focused information on water use in each sector (quantities and variability, real needs and use yield, but also quality, modes of supply, role of intermediaries, payment of costs, flexibility, price variations, etc.);*
  - *institutional strengthening permitting regular analysis of relevant measures and data in order to give decision-makers objective elements on which to base decisions and subsequent monitoring and to supply the public with transparent information.*
- C Prepare and take into account indicative objectives and standards for the major forms of use in terms of quantity and quality:
- *standards help to identify real needs and serve as a reference point for estimating wastage;*
  - *promoting research in this area.*



### 3. To undertake practical demand control activities

- C Carry out pilot projects to improve the efficiency of use systems (networks, processes, etc.):
- *aim in particular at proper capitalization and utilization of the results in order to develop such strategies.*
- C Improve the output of water distribution and use networks, whilst focusing on maintenance:
- *improve control of water distribution (flow, pressure), especially downstream control (drinking water, irrigation);*
  - *envisage privatizing water distribution services with caution, gradually and transparently, when this can help to improve distribution networks;*
  - *set quantified good management targets of general interest for distribution bodies, for example, through contracts drawn up when the State allocates resources;*
  - *develop more economical irrigation procedures (mini-sprinklers, droplets) promoting them through economic measures (including agricultural prices);*
  - *promote the expansion of use of low-quality water (saltwater, brackish water or seawater, as well as treated urban and industrial wastewater) instead of drinking water, wherever this can be done at reasonable cost.*
- C Develop sophisticated and graduated systems of prices and charges:
- *this implies that awareness of the real cost of producing, distributing and treating water should be more transparent, i.e. there must be clear accounting procedures in the management bodies so that the water cost/price differential, and consequently the impact of various political options for setting prices, can be estimated better;*
  - *take into account demand management objectives properly (according to the different forms of use, extraction methods, water quality ...). The method used to fix water charges must be clear in order to be understood, easy to use in order to be applied, realistic in order to be accepted. Gradual fixing of charges by volume for agriculture and for drinking water is deemed preferable.*
- C Make users directly understand the meaning and objective of financial incentives in the form of penalties (taxes, charges ...) or encouragements (subsidies). These incentives can be other tools to orient consumption.
- C Promote better incorporation of the imperatives of demand management in all sectoral development policies so as to reduce demand:
- *better understanding of the interaction between water management strategies and sectoral development policies that have an impact on water demand in each country;*
  - *strengthen the role of coordination institutions at the national level in relation to water demand (regime to authorize the extraction of water, etc.);*
  - *institutionalize participation by users in decision-making (association of farmers using irrigation, etc);*
  - *if there is an authorization regime, an effective water police provided with the human and financial resources;*
  - *improve water harvesting and recharge technics for groundwater.*

**4. To encourage cooperation among groups of countries facing the same demand management problems and future shortages:**

- C Encourage the transfer of know-how by and for managers:
- *transfer of technology and training for proper mastery of effective water conservation technologies;*
  - *exchange of experience among countries that face common problems but have different and complementary strategies;*
  - *ensure that water demand management becomes an area of training that is just as important as resource management for technical managers of water planning and use.*
- C Implement economic and technical cooperation on water in line with the objectives of water demand management:
- *promote cooperation that will lead to water savings;*
  - *ensure that the strengthening of economic partnership, through the establishment of a free trade area by the year 2010 and through financial cooperation, will not have a negative effect and thus lead to environmental degradation in the management of natural resources, including water, and will ensure the food security of the most vulnerable countries. These are two essential requirements for the establishment of the components of sustainable development within a systemic and rational approach.*

## **B. RECOMMENDATIONS ON THE INTEGRATED AND SUSTAINABLE MANAGEMENT OF COASTAL ZONES**

Taking note of the findings of the working group convened in Benidorm under the guidance of the two task manager, Morocco and Medcities<sup>1</sup> (21-23 September 1997), and in light of the work of RAC/BP and RAC/PAP, on the rapid degradation of many coastal areas, such as islands, with its inherent risks to certain economic activities, the MCSD adopted the following draft recommendations:

- (I) To improve institutional mechanisms for the integrated management of coastal areas by creating if necessary and/or strengthening inter-ministerial or inter-administrative structures and frameworks for the coordination of the actors involved in coastal development and management and the integration of their activities.

Such structures should be set up at the level relevant to each country (national, regional, local).

Local and regional authorities should be invited to play a significant role in the preparation of integrated coastal management strategies.

- (ii) To establish or strengthen and enforce legislative and regulatory instruments:
- On the regional scale, to prepare guidelines for implementing appropriate national legal instruments.
  - On the national scale, the legislative instruments should:
    - define the coastal areas concerned;
    - require that for all coastal areas subject to development pressures, management plans be prepared;
    - ensure that management plans be accompanied by environmental impact studies;
    - establish regulations for development and protection to promote sustainable management of coastal areas including regulations on the protection of sites of ecological and landscape value on preventing dispersed urban development, or development too close to the shore and on ensuring proper provision of environmental infrastructure for areas already urbanised.
  - Until regional or local development plans are in force, conservation provisions to protect natural and coastal areas should be adopted and implemented.
  - Finally, provisions should be made to ensure the implementation of the foregoing provisions; to that effect:
    - the organisations responsible for coastal development and protection should be strengthened; staff should receive appropriate training as needed;

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<sup>1</sup> PAP report MCSD/18/97/W1

- effective law enforcement mechanisms should be provided or strengthened;
  - when necessary and with respect to national conditions, court action should be made easier everywhere to oppose planning decisions;
  - an efficient system for liability and sanctions should be established.
- (iii) To ensure access to information in order to raise awareness and training for the largest possible number of actors. Capitalizing on and disseminating information should be encouraged through exchanges of experience and transfer of know-how by making use of MAP structures.
- (iv) To establish appropriate systems of incentives for the integrated management of coastal areas by developing economic, financial and tax instruments which would ensure that the costs of the protection and management of natural areas would be linked to as well as balanced by the financial resources generated by development. Funds from multilateral services, bilateral cooperation and domestic resources should be better coordinated.
- (v) To develop with the support of relevant international organizations and of the European Union, practical pilot projects in the field of coastal areas management and disseminate the results.

Priority should be given to projects concerned with:

- coastal areas subject to potential or actual conflicting uses;
  - other areas of environmental, economic or social significance like islands and deltas.
- (vi) The role of the public is very important within the context of sustainable development of coastal areas, according to a principle of joint responsibility which should be encouraged. The main object is to increase opportunities and improve the effectiveness of active public participation.
- to that effect, participation mechanisms, such as advisory committees, public enquiries and hearings and actual participation in the management should be developed.
  - the MCSD further proposes:
    - setting up good practice guidelines on the integrated management of coastal areas;
    - drafting a regular report on the state of the environment of coastal areas; and putting assessment tools in place with the support of public stakeholders;
    - developing new forms of partnership between the public and other stakeholders to encourage innovative ideas;
    - inviting the public to participate in the decision-making processes;
    - strengthening the cooperation which promotes exchange of experience and adds incentives for the public to implement integrated management programmes and projects for coastal areas.

National, regional and local strategies and Mediterranean partnerships should be promoted in order to ensure a sustainable management of coastal areas.