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ENVIRONMENTAL HEALTH ASPECTS OF SOCIO-ECONOMIC DEVELOPMENT IN THE MEDITERRANEAN REGION

Note prepared by the World Health Organization (WHO)

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I. INTRODUCTION

1. The Mediterranean Sea, with a surface of almost three million square kilometres, has a coastline shared among 18 countries in three continents. It has played a major role in the development of the world civilization and, because of its cultural background, its privileged climate and the beauty of its coastline, it has become one of the most highly developed tourist areas in the world.

2. The economic development of the coastal countries varies widely, the yearly per capita production ranging from US\$ 300 to US\$ 2500. In general, the northern countries are more developed and therefore have worse pollution problems than those on the south side of the Mediterranean. However, all the countries around the Mediterranean are now becoming more industrialized, their populations are increasing and coastal tourism is expanding extremely rapidly, particularly since the advent of relatively cheap air charter travel.

3. In recent years the issues concerning environmental changes and their impacts on the health and wellbeing of the population in the Mediterranean coastal countries has become one of the priority questions both among the countries concerned and international agencies active in this field. In fact some of the changes brought about by the impact of certain events during the last few years have put into sharper focus human needs while creating greater awareness of the relationship between health and the environment, as well as how a better quality of life could be achieved by action on the environment.

4. Progress has been made in many sectors concerning environmental health in these countries. The rate of provision of community water supply and waste disposal although encouraging is uneven throughout the region and is too slow in some countries to be satisfactory. However, there are signs that if the present efforts are sustained, and provided governments are determined to allocate the additional resources required, the promise of ultimate success is there.

5. Progress has also been made in the detection of environmental health hazards and much has been learned about adverse effects of specific biological, chemical and physical hazards in the human environment and also about their prevention and control. Much rests to be done, however, for the region-wide application of such knowledge leading to the necessary improvement of deteriorating environmental conditions.

II. ENVIRONMENTAL HEALTH PROBLEMS

6. Almost any development effort, industrial, agricultural, touristic or other, has a certain impact on the human health and environment. In view of the proposed Blue Plan programme, a brief review of the most evident health problems common to a large number of countries in the Mediterranean region has been made.

Water supply

7. The Mediterranean basin is a freshwater-deficient area and the provision of water supplies for communities, industry and agriculture becomes an increasingly difficult task, aggravated by the rapid development of all economic sectors and increasingly larger seasonal populations to be supplied during the tourist season. More information is therefore required on the basic consumption needs of each sector and new approaches to meet these demands have to be sought. The quality of water supplies and their relation to human health are another aspect of concern in this area.

Wastes disposal

8. Sanitary methods for the disposal of sewage, garbage and other community wastes are indispensable for the prevention of endemic or epidemic spreading of communicable diseases in the Mediterranean region. Much remains to be done in many places to improve the present waste disposal practices. Hazardous waste constituents in industrial effluents aggravate the problem of ultimate disposal. Thus, land-based pollution sources play a major role in the pollution of the Mediterranean. Ways and

means of alternative disposal or re-use and recovery have to be developed and tested.

Public health

9. The serious and rapidly growing pollution of freshwater resources and coastal waters of the Mediterranean basin is having an increasing impact on the social and economic wellbeing of the coastal countries. The present situation constitutes a significant health hazard in many places; typhoid, dysentery, viral hepatitis and poliomyelitis have all been endemic in the Mediterranean area during recent years and there have been a number of cholera outbreaks. Moreover, whereas eight million workers from Mediterranean countries work in the industrialized areas of northern Europe, 30 millions tourists, mainly from those same areas, spend their holidays on the shores of the Mediterranean. There is thus a considerable potential for the spread of pathogenic agents and no country can be complacent about its own situation.

Vector control

10. The use of pesticides in the Mediterranean basin is, and will continue to be the major defense against pests of agriculture and vectors of human diseases. However, alternative methods of control, including biological control and environmental management, could reduce the present dependence upon chemicals. Within the Mediterranean basin mosquito-borne diseases (including malaria) and schistosomiasis are intimately linked with water sources and water use. Chemical control of the vectors and intermediate hosts of these diseases is essential, but we have little knowledge on the side effects of such control measures on non-target organisms in the general environment. In addition, we lack clearly defined studies to demonstrate the cost-effectiveness of alternate means of control of the vectors of these diseases.

III. PRINCIPLES OF ACTION

11. According to the general guidelines of the Blue Plan programme, it is health proposed to collect any pertinent information on the four sectoral environmental/ problem areas in the Mediterranean countries. Present situation in the field as well as institutional and manpower aspects have to be included in this effort. The information will be consolidated into sectoral review reports providing the basis for a subsequent series of pilot studies. These studies will tackle the most critical problems, and national institutes, laboratories, etc. are expected to carry out the necessary work while support services are to be offered by the international agencies as needed.

12. The guiding principle in the proposed course of action is that national institutions conduct the required studies and thus develop an improved understanding of their problems. Collaboration among institutions would further promote this process and may ultimately create the desired impact on the planning and control of socio-economic development in the Mediterranean region.

IV. PROPOSED ACTION PLAN

13. The activities envisaged in the field of environmental health under the Blue Plan programme are to be implemented in three phases:

Phase I: information collection in the countries concerned;

Phase II: information consolidation, including sectoral reports, trend estimates, identification of problems and of alternative approaches to their solution;

Phase III: pilot studies, including sectoral as well as interdisciplinary works.

The proposed activities within each phase are presented jointly for the four sectors of concern in the following table.

Table 1: Summary of areas and activities concerning the environmental health aspects of socio-economic development in the Mediterranean region

SITUATION	Water Supply	Wastes Disposal	Public Health	Vector Control
PRESENT PROBLEMS	<ul style="list-style-type: none"> - Lack of basic consumption data - General shortage of drinking water - Inadequate supply services - Inadequate surveillance of water quality - Occurrence of water related diseases 	<ul style="list-style-type: none"> - Inadequate disposal facilities - Lack of trained manpower - Inadequacy of public services - Lack of enforcement of national regulations - Need for alternative disposal and reuse methods 	<ul style="list-style-type: none"> - Relationship of sanitary conditions and communicable diseases not sufficiently understood - epidemics and food poisoning frequently occurring in tourist season - disease transmission through tourists and migrant workers 	<ul style="list-style-type: none"> - Side effects from use of pesticides - Lack of alternative vector control methods - Close relation of communicable disease with water sources and use - Need for development of non-chemical control of vectors
OBJECTIVES OF BLUE PLAN ACTIVITIES	<ol style="list-style-type: none"> 1. Identify freshwater consumption needs 2. Evaluate national water supply services 3. Relate water quality and disease 4. Propose alternative solutions to problem 	<ol style="list-style-type: none"> 1. Assess waste disposal practices 2. Evaluate alternative disposal and reuse methods 3. Relate waste disposal and disease 	<ol style="list-style-type: none"> 1. Identify health problems of migrant groups 2. Assess health requirements of various population groups 3. Relate tourist development and disease 	<ol style="list-style-type: none"> 1. Assess chemical control of mosquitos 2. Assess biological control of mosquitos 3. Assess environmental impact of snail control

Table 1 (cont'd.)

ACTION PLAN	Water Supply	Wastes Disposal	Public Health	Vector Control
PHASE I: INFORMATION COLLECTION	<ul style="list-style-type: none"> - Water consumption for domestic supplies, industrial demands, agricultural water needs (livestock and irrigation) - Status of water supply networks - Availability of fresh-water resources - National services, laboratories, institutes, etc. involved - Present manpower situation and needs at various levels 	<ul style="list-style-type: none"> - Disposal methods applied for sewage, industrial wastewaters and solid waste materials - Administrative structures for wastes collection, disposal and for pollution control - Institutions dealing with wastes management and environmental pollution problems (water, air and soil contamination) - Manpower situation and needs at various levels 	<ul style="list-style-type: none"> - Communicable diseases and outbreaks of epidemics - Food safety and hygienic situation - Epidemiology of coastal bathing waters - Tourist movements, migrant workers and other vulnerable groups - Health status of resident and migrant populations - Structure of public health administration - Research institutes involved 	<ul style="list-style-type: none"> - Available research results - Present vector control practices - Future needs for vector control - Institutions involved in present control programmes - Institutions involved in research activities on improved and alternative control methods - Research capacity available in the countries and support required

Table 1 (cont'd.)

ACTION PLAN	Water Supply	Wastes Disposal	Public Health	Vector Control
<p>PHASE II: INFORMATION CONSOLIDATION</p>				
1. Sectoral reports on:	present community water supply situation	present waste disposal management practices	present public health situation in resident and migrant populations	present practice of pesticide uses in agriculture and vector control
2. Estimation of future trends on:	water consumption for various uses	wastewater and solid waste generation	tourist development and migrant workers	needs for pesticide use by type, quantity and area
3. Identification of major problem areas:	critical water supply demands	waste disposal practices requiring improvement	critical public health areas (e.g. epidemics)	critical side effects from pesticide use
4. Identification of alternative solutions:	e.g. dual water supplies	e.g. sewage reuse and waste material recovery	e.g. health surveillance of migrant populations	e.g. biological control of vectors and hosts

Table 1 (cont'd.)

ACTION PLAN	Water Supply	Wastes Disposal	Public Health	Vector Control
PHASE III: <u>PILOT STUDIES</u>				
1. <u>Sectoral pilot studies</u>	Survey of water consumption and water quality in three selected areas: a. island with tourists and limited resources b. large urban/metropolitan area with diverse demands c. rural area with agricultural water demands	Study of alternative waste disposal methods in four selected areas: a. marine disposal of municipal wastes b. reuse of sewage on-land c. recovery of waste materials d. wastes management in rural areas	Study of significant public health problems in four selected areas: a. epidemiology of coastal bathing waters b. food sanitation and public health effects c. health impact of tourist development and migrant workers d. public health situation in large urban/metropolitan agglomerations	Study of alternative vector control methods in 3 selected areas: a. effect of chemical control of mosquitoes on non-target organisms b. control of mosquitoes resistant to insecticides c. environmental impact of snail control
2. <u>Interdisciplinary pilot studies</u>	Industrialized 1. Environmental health situation in large/urban/metropolitan agglomerations to be studied in one or two selected cities, including water supply, sewage disposal, solid wastes, water pollution, air pollution, food sanitation, endemic and epidemic diseases, etc. 2. Environmental health situation in tourist development areas to be studied in one or two large touristic places, including coastal bathing waters, food sanitation, water supply, wastes disposal, health situation of tourists and local population, etc. 3. Environmental health situation in rural areas to be studied in one or two typical agricultural areas, including basic sanitation, sewage farming, reuse of waste materials, use of pesticides, etc.			