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**MEDITERRANEAN ACTION PLAN**

Preparatory Meeting of the Task Team on
Implications of Climatic Changes on the
Coastal Area of Sfax, Tunisia

Sfax, 17 October 1994 and Tunis, 20 October 1994

# REPORT OF THE PREPARATORY MEETING OF THE TASK TEAM ON IMPLICATIONS OF CLIMATIC CHANGE ON THE COASTAL AREA OF SFAX

UNEP
Athens, 1995

**BACKGROUND**

As part of the efforts of the United Nations Environment Programme (UNEP) to analyze the potential implications of predicted climatic change and to assist the governments in designing policies and measures which may avoid or mitigate the expected negative effects of this change, or to adapt to them, Task Teams on the implications of climatic change were established in 1987 for six regions covered by the UNEP sponsored Regional Seas Programme (Mediterranean, Wider Caribbean, South Pacific, East Asian Seas, South Asian Seas, and South East Pacific regions), with the initial objective of preparing regional studies on expected climatic change on coastal and marine ecosystems, as well as on the socio-economic structures and activities within these regions. Additional Task Teams were later established for the West and Central African, Eastern African, Persian/Arabian Gulf, Red Sea and Gulf of Aden and Black Sea regions.

During the work on the Mediterranean regional study in the period from 1987 to 1989, it was felt that while the general effects might be similar throughout the Mediterranean region, the response to these effects would have to be highly site-specific. Therefore in the framework of the Mediterranean Task Team six specific case studies were prepared (deltas of the rivers Ebro, Rhone, Po and Nile; Thermaikos Gulf and Ichkeul/Bizerte lakes) in 1989. The final results of the work on the Mediterranean regional studies and on the six case studies were published in the book "Climatic Change and the Mediterranean" (L. Jeftic, J.D. Milliman, G. Sestini, Eds), Edward Arnold Publ., London, 1992.

In preparing these case studies it had become apparent that prediction of impacts was constrained by the absence of scenarios of future climates on a regional, sub-regional and local scale. Accordingly the Climatic Research Unit of the University of East Anglia had been commissioned by UNEP to attempt to produce a Mediterranean Basin scenario and to develop scenarios of future local climate for the selected case study areas.

Using the experience of the "first generation" case studies in 1990 the preparation of the "second generation" of the site-specific case studies was initiated for the island of Rhodes, Kastela Bay, the Syrian coast, the Maltese Islands, and the Cres-Losinj Islands.

The objectives of these studies were:

- to identify and assess the possible implications of expected climatic change on the terrestrial, aquatic and marine ecosystems, population, land-and sea-use practices, and other human activities;

- to determine areas or systems which appear to be most vulnerable to the expected climatic change; and

- to suggest policies and measures which may mitigate or avoid the negative effects of the expected impacts, or adapt to them, through planning and management of coastal areas and resources, using the presently available data and the best possible extrapolations from these data.

The final results of these five case studies were presented at the meeting on Implications of Climatic Change on the Mediterranean Coastal Areas (Island of Rhodes, Kastela Bay, Syrian Coast, Malta and Cres/Losinj Islands), held in Malta in september 1992. The report of this meeting, containing the main findings, conclusions and recommendations of the five studies was published as document UNEP(OCA)/MED WG.55/7.

A third generation case studies were launched in 1993, in the framework of the site-specific Coastal Areas Management Programme (CAMP). So far three such studies are being developed (Fuka-Matruh coastal region, the Albanian coast, and Sfax coast). For each of the second generation of case studies Task Teams were established and the same procedure will be followed for the third generation of case studies.

This meeting is the preparatory meeting of the Task Team for Sfax case study.

## REPORT OF THE MEETING

### Opening of the Meeting - Agenda item 1

The meeting was opened[1] on 17 October 1994 by Mr. K. Zouari Task Team Coordinator, who welcomed the participants and expressed appreciation for the support of the United Nations Environment Programme (UNEP) and of the Coordinating Unit for the Mediterranean Action Plan (MAP) in preparing for the preparatory meeting of the Task Team on the Implications of Climatic Change on Sfax region.

Mr. M. El-Sayed, UNEP consultant, welcomed the participants on behalf of Mr. L. Jeftic, Deputy Coordinator of the Mediterranean Action Plan (MAP). He expressed his appreciation for the support provided to the meeting. He continued by briefly outlining the background and scope of the meeting and expressing his wishes for full success for the meeting and work of the Task Team.

The meeting(s) were held in the premises of the Ecole Nationale d'Ingénieurs de Sfax (ENIS) and the Université de Tunis. Participants of the meeting(s) are listed in Annex I to the report.

### Election of Officers - Agenda item 2

Mr. K. Zouari, Task Team Coordinator acted as a chairman of the meeting, and Mr. M. El-Sayed as rapporteur and technical secretary of the meeting.

### Adoption of the Agenda - Agenda item 3

The provisional agenda as proposed by the Secretariat was adopted and appears as Annex II to this report.

### Overview of Greenhouse Effect and its Implications - Agenda item 4

Mr. M. El-Sayed presented an overview of the current consensus views concerning the greenhouse effect; past and predicted changes in global mean temperature and sea level, as well as the range of possible climatic impacts which might occur.

Mr. El-Sayed informed the meeting that the Climatic Research Unit of the University of East Anglia (CRU) prepared a set of regional scenarios of climatic change for the Mediterranean Region and has agreed to provide sub-regional scenarios in support of the Mediterranean case studies. As part of this work, sub-regional scenarios of future climatic change for the Island of Rhodes, Kastela Bay, the Island of Malta, Syrian coast and Cres/Losinj Islands were already prepared. It was agreed that the existing sub-regional scenario for Malta will be used for this study since it covers the coast of Tunisia.

### Coastal Area Management Programme (CAMP) for the coastal area of Sfax - Agenda item 5

Mr. El-Sayed informed the meeting about the Coastal Areas Management Programme (CAMP) in general, and the Agreement of the Programme of the Coastal Management for the Coastal Zone of Sfax in particular.

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[1] Because of the difficulties of holding a meeting for all Task Team members from Sfax and Tunis, the Preparatory Meeting was exceptionally held twice. The largest gathering attended the meeting held in Sfax on 17 October 1994, the second was held in Tunis on 20 October 1994. Almost the same procedure was followed in the two meetings.

**Implications of Expected Climatic Change on Sfax - Agenda item 6**

Project outline - Agenda item 6.1

Basic information on the Sfax region was provided by Mr. K. Zouari. The geographic coverage of the study area conforms with the area outlined in the Agreement of the Programme of the Coastal Management for the Coastal Zone of Sfax.

Mr. El-Sayed then made a presentation of the objectives, assumptions and outputs of the study, which were strictly on line with the same items outlined in the Agreement of the Programme of the Coastal Management for the Coastal Zone of Sfax (Annex III). He further presented an outline for the final report of the study. The outline was discussed in details and was adopted in its French version with indication of Task Team members responsible for the various sections of the report (Annex IV).

It has been recommended and agreed upon that the report will be written and presented in French language.

General workplan and timetable - Agenda item 6.2

The proposed general workplan and timetable for the study was presented by Messrs. Zouari and El-Sayed, then discussed and amended. The final agreed workplan and timetable appears in Annex V of this report.

Detailed workplan for each Task Team member - Agenda item 6.3

Tasks and workplan for each Task Team member were briefly discussed and the lead authors for individual sections of the report were agreed upon by the meeting (Annex IV).

The meeting emphasized the importance of using the existing information base relevant to the study, and in this respect the information contained in MAP reports and publications were recognized.

**Adoption of the Report - Agenda item 7**

The draft report, including its substantive annexes was considered and adopted.

**Closure of the Meeting - Agenda item 8**

The meeting(s) were closed on 19 October 1994 in Sfax and in 20 October 1994 in Tunis. Mr. El-Sayed congratulated the Task Team coordinator and members for their constructive remarks, inputs and enthusiasm.

# ANNEX I

# LIST OF PARTICIPANTS

## A. MEMBERS OF THE TASK TEAM

| | |
|---|---|
| **Mr. Abderrahemn BOUSNINA** | Faculté des lettres et Sciences humaines<br>Bd 9 Avril<br>Tunis |
| **Mr. Jalel BOUZID** | Ecole Nationale d'Ingénieurs de Sfax (ENIS)<br>B.P."W"<br>3038 Sfax |
| **Mr. Med. N. BRADI** | Institut National Scientifique et Technique<br>d'Oceanographie et de Pêche (INSTOP)<br>Av. Med H. Khefacha. 3092<br>Sfax |
| **Mr. Med CHAYEB** | Faculté des Sciences de Sfax<br>Route Soukra<br>3038 Sfax |
| **Mr. Noureddine KARRAY** | Faculté des lettres et sciences humaines de Sfax<br>Route de l'Aerodorome km 4,5<br>Sfax |
| **Mr. Kamel ZOUARI** | Task Team Coordinator<br>Ecole Nationale d'Ingénieurs de Sfax (ENIS)<br>B.P."W"<br>3038 Sfax |

## B. UNEP EXPERT

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|---|---|
| **Mr. Mahmoud El-Sayed** | Faculty of Science<br>Alexandria University<br>Egypt |

## C. OBSERVERS

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|---|---|
| **Mr. Habib Ayadi** | Faculté des Sciences de Sfax<br>Route Soukra<br>3038 Sfax |
| **Mr. Taoufik Gargouri** | Agence Nationale de Protection de l'Environnement (ANPE)<br>Responsable Regional à Sfax<br>Sfax |

# ANNEX II

# AGENDA

1. Opening of the Meeting

2. Election of Officers

3. Adoption of the Agenda

4. Overview of greenhouse effect and its implications

5. Coastal Area Management Programme (CAMP) for the coastal area of Sfax

6. Implications of climatic change on the coastal area of Sfax

   6.1 Project outline
   6.2 General workplan and timetable
   6.3 Detailed workplan for each Task Team member

7. Adoption of the report

8. Closure of the Meeting

# ANNEX III

# OBJECTIVES, ASSUMPTIONS AND OUTPUTS OF THE CLIMATIC CHANGE STUDY[1]

## OBJECTIVES

- to identify the possible implications of the sea level rise on the coastal ecosystem;
- to identify the possible implications of rise of temperature on the coastal, aquatic and marine ecosystems, emphasizing this effect on the important economic species;
- to identify the possible implications of ecological and climatic change on the socio-economic structures and activities;
- to determine areas or systems which appear to be the most vulnerable to the expected climatic change;
- to propose appropriate options to avoid or mitigate the predictable consequences of expected climatic change.

## ASSUMPTIONS

The study will be based on:

- the best available information, knowledge and insights into the problems relevant to the coastal region of Sfax;
- warming figures of 0.9EC (1990-2030) and 2.5EC (1990-2100) and sea level change of +16 cm (1990-2030) and +48 cm (1990-2100);
- the scenarios of climatic change for the Mediterranean elaborated by the Climatic Research Unit of the University of East Anglia, U.K.

## OUTPUTS

**The principal outputs of this study will be:**

- data base for the management of the coastal zone of Sfax;
- evaluation of climatic change problems;
- development strategies for the coastal zone of Sfax based on the expected climatic change;
- proposed policy options to mitigate or avoid the consequences of expected climatic change.

[1] This annex is the translation of the proposed objectives, assumptions and outputs in "L'ACCORD RELATIF AU PROGRAMME D'AMENAGEMENT COTIER POUR LA ZONE COTIERE DE SFAX (TUNISIE)".

# ANNEX IV

# OUTLINE OF THE REPORT

**EXECUTIVE SUMMARY** — **K. Zouari and A. Bousnina**

**1. INTRODUCTION**

**1.1. Background**

**1.2 Basic facts about Sfax coastal region**

**1.3. Methodology and assumptions used in the study**

**1.4. Temperature and precipitation scenarios for Sfax region**

**2. IDENTIFICATION OF PRESENT SITUATION AND TRENDS**

**2.1. Climate conditions and atmosphere** — **A. Bousnina**
- 2.1.1. Climate conditions
- 2.1.2. Atmosphere interaction

**2.2. Lithosphere**
- 2.2.1. Geology — **K. Zouari and J. Bouzid**
- 2.2.2. Soil — **M. Chayeb and K. Zouari**

**2.3. Hydrosphere** — **J. Bouzid and K. Zouari**

**2.4. Natural ecosystems**
- 2.4.1. Terrestrial ecosystems — **M. Chayeb**
- 2.4.2. Freshwater ecosystems — **M. Bradai**
- 2.4.3. Marine ecosystems — **M. Bradai**

**2.5. Managed ecosystems**
- 2.5.1. Agriculture — **M. Chayeb**
- 2.5.2. Fisheries — **M. Bradai**
- 2.5.3. Aquaculture — **M. Bradai**
- 2.5.4. Silviculture — **M. Chayeb**

**2.6. Energy and industry** — **N. Karray**
- 2.6.1. Energy
- 2.6.2. Industry

**2.7. Tourism** — **N. Karray**

**2.8. Transport and services** — **N. Karray**

**2.9. Sanitation and health aspects** — **N. Karray**
- 2.9.1. Sanitation
- 2.9.2. Health aspects

# ANNEX V

# WORKING TIMETABLE

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|---|---|
| Nomination of the project coordinator | September 1994 |
| Establishment of the Task Team | October 1994 |
| Preparatory meeting of the Task Team | October 1994 |
| Provisional data and document collection | March 1995 |
| Analysis and evaluation of the data and documentation collected and presentation of draft report | April 1995 |
| Preparation of the final draft report | June 1995 |
| Submission of the final draft report to UNEP/MAP | July 1995 |