



REGIONAL SEAS

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***Implications of expected climate change
in the West and Central African Region: an overview***

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PREFACE

In spite of uncertainties surrounding the predicted climate change, greenhouse gases appear to have accumulated in the atmosphere to such a level that the changes may have started already and their continuation may now be inevitable.

The environmental problems associated with the potential impact of expected climate change may prove to be among the major environmental problems facing the marine environment and adjacent coastal areas in the near future. Therefore, in line with UNEP Governing Council decision 14/20 on "Global Climate Change", the Oceans and Coastal Areas Programme Activity Centre (OCA/PAC) of the United Nations Environment Programme (UNEP) launched and supported a number of activities designed to assess the potential impact of climate change and to assist the Governments concerned in identification and implementation of suitable response measures which may mitigate the negative consequences of the impact.

Since 1987 to date, Task Teams on Implications of Climate Change were established for eleven regions covered by the UNEP Regional Seas Programme (Mediterranean, Wider Caribbean, South Pacific, East Asian Seas, South Asian Seas, South-East Pacific, Eastern Africa, West and Central Africa, the Kuwait Action Plan Region, the Red Sea and Gulf of Aden, and the Black Sea).

The initial objective of the Task Teams was to prepare regional overviews and site-specific case studies on the possible impact of predicted climate change on the ecological systems, as well as on the socio-economic activities and structures of their respective regions. The overviews and case studies were expected to:

- examine the possible effects of the sea-level changes on the coastal ecosystems (deltas, estuaries, wetlands, coastal plains, coral reefs, mangroves, lagoons, etc.);
- examine the possible effects of temperature elevations on the terrestrial and aquatic ecosystems, including the possible effects on economically important species;
- examine the possible effects of climatic, physiographic and ecological changes on the socio-economic structures and activities; and
- determine areas or systems which appear to be most vulnerable to the above.

The regional overviews were intended to cover the marine environment and adjacent coastal areas influenced by, or influencing, the marine environment. They are to be presented to intergovernmental meetings convened in the framework of the relevant Regional Seas Action Plans, in order to draw the countries' attention to the problems associated with expected climate change and to prompt their involvement in development of policy options and response measures suitable for their region.

Following the completion of the regional overviews, and based on their findings, site-specific case studies are developed by the Task Teams and are planned to be presented and discussed at national seminars. The results of these case studies and the discussions at the national seminars should provide expert advice to national authorities in defining specific policy options and suitable response measures.

The Task Team on the Implications of Climate Change in the West and Central African Region, sponsored by UNEP - OCA/PAC, was established and met in its first meeting in Lagos, Nigeria, between 7-9 June 1989, and in its second meeting jointly with the Task Team for the Eastern African Region in Nairobi between 18-21 December 1989. Each member of the Task Team was assigned a specific subject to address in detail, and the present overview is largely based on the contributions by the individual members of the Task Team as given in the Appendix. The Task Team consisted of: T.O. Ajayi, M. Akle, E.O. Asare, L.F. Awosika, R.O. Egunjobi, I. Findlay, A.C. Ibe, K.P. Koffi, I. Niang, S. Ogbuagu, S.O. Ojo, S.G. Zabi.

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CONTENTS

Page

PREFACE.....	i
TABLE OF CONTENTS	iii
LIST OF FIGURES	v
LIST OF TABLES	v
1. INTRODUCTION	1
2. PHYSICAL CHARACTERISTICS OF THE REGION	2
2.1 Location	2
2.2 Geology and Geomorphology	2
2.3 Climate	3
2.4 Hydrology and water resources	6
2.5 Vegetation	7
2.6 Soils	10
2.7 Oceanography	10
3. SOCIO-ECONOMIC CHARACTERISTICS OF THE REGION	12
3.1 Population and human settlements	12
3.2 Natural resources	13
3.3 Agriculture	16
3.4 Communications	17
3.5 Industries	17
3.6 Tourism and recreation	18
4. CLIMATE CHANGE AND VARIATIONS IN THE WACAF REGION	18
4.1 Past, present and future	18
4.2 The nature of the problem	18
4.3 Greenhouse gases and climate change	19
4.4 Short- and medium-term climatic variations	20
4.5 Spatial variations	21
4.6 Nature of the problem as feedbacks to be intensified	21
5. PRESENT STATE OF THE ENVIRONMENT	23
5.1 Pollution	23
5.2 Coastal degradation	24
5.3 Drought and desertification	25
6. IMPACT OF CLIMATE CHANGE ON PHYSICAL PROCESSES	26
6.1 Erosion and flooding	26
6.2 Atmospheric and ocean dynamics	26
6.3 Drought and desertification	27
7. IMPACT OF CLIMATE CHANGE ON RENEWABLE AND NON-RENEWABLE RESOURCES	27

CONTENTS (continued)

	Page
7.4 Effects on fisheries.....	29
8. IMPACT OF CLIMATE CHANGE ON SOCIO-ECONOMIC ACTIVITIES AND STRUCTURES.....	30
8.1 Climate change, agriculture and livestock production.....	30
8.2 Effects on fishing.....	33
8.3 Effects on other socio-economic activities.....	33
9. IMPACT OF CLIMATE CHANGE ON POPULATION PROCESSES AND HUMAN SETTLEMENTS.....	34
9.1 Dislocation and relocation.....	34
9.2 Norms and values.....	35
9.3 Health concerns.....	35
10. STRATEGIES FOR ADDRESSING CLIMATE CHANGE AND ITS IMPACTS.....	35
10.1 Strategies for averting the change.....	35
10.2 Strategies for mitigating the effects.....	36
11. CONCLUSION.....	38
REFERENCES.....	39
APPENDIX I.....	42

LIST OF FIGURES

	Page
Figure 1: Countries and zones of the WACAF Region	2
Figure 2: Main sedimentary basins in the WACAF Region	4
Figure 3: Mean annual rainfall over Africa	5
Figure 4: Major rivers and their catchment areas in the WACAF Region	7
Figure 5: The vegetation regions of Africa	9
Figure 6: Currents/circulation patterns in the WACAF Region	11
Figure 7: Wave data	12
Figure 8: Decadal additions to global mean greenhouse forcing of the climate system	19
Figure 9: Trends of the annual rainfall in West Africa between 1900 and 1985 averaged for 60 stations in West Africa	20
Figure 10: Spatial variations in rainfall in climatic zones in West Africa (1941-84)	21
Figure 11: Percentage frequency of moderate droughts in West Africa (1901-89)	22
Figure 12: Percentage frequency of severe droughts in West Africa (1901-89)	22
Figure 13: The interconnected components involved in climate impact studies	23

LIST OF TABLES

Table 1: Hydrological characteristics of selected rivers in West Africa	8
Table 2: 1989 United Nations population estimate of the coastal countries in the WACAF Region	13
Table 3: 1974-1986 total marine fish landings reported for the WACAF Region	15

1. INTRODUCTION

Climate change and variability have been and will continue to be characteristic of weather and climate. Over the past millions and thousands of years, extensive changes have occurred in the climates of different areas of the world. Indeed, over the past decades, a large number of relatively short-term changes and variations have occurred. In the West and Central African Region (WACAF), these variations and changes have been manifested in rainfall variations, for example, which in turn have had significant impact on hydrological and hydrometeorological characteristics in the region. Thus, rainfall variations have caused floods, droughts and desertification which in turn have had a great impact on the socio-economic situation of the region. Indeed, climate change and variabilities have created problems in human activities, and other aspects of socio-economic planning and development in the region. Human activities such as energy production, management of water resources, food production and agriculture, forestry, marine resource development, transportation and tourism, have all been subjected to the vagaries of weather and climate in the region.

In the light of these past experiences, it is anticipated that the expected global climate changes, due to the increasing greenhouse effect, will have far reaching consequences for the WACAF Region.

Recognizing this fact, in 1989 the Oceans and Coastal Areas Programme Activity Centre (OCA/PAC) of the United Nations Environment Programme (UNEP) established a Task Team for West and Central Africa as part of a global initiative begun in 1987 with the formation of Task Teams to study the implications of expected climate change in regions where UNEP has active Regional Seas Programmes.

The Task Team considered and adopted the terms of reference provided by UNEP as the basis for the work of all regional Task Teams which are as follows:

Long-term objectives:

- (a) to assess the potential impact of climate change on the coastal and marine environment as well as on socio-economic structures and activities; and
- (b) to assist Governments in the identification and implementation of suitable policy options and response measures which may mitigate the negative consequences of the impact.

Correspondingly, the short-term objectives of the Task Teams are:

- (a) to analyze the possible impact of expected climate change on the coasts and marine ecological system, as well as on the socio-economic structures and activities; and
- (b) to prepare overviews and selected case studies relevant to specific regions.

This regional overview covers:

- (a) the possible effects of the sea level changes on the coastal ecosystems (deltas, estuaries, wetlands, coastal plains, coral reefs, mangroves, lagoons, etc.);
- (b) the possible effects of temperature elevations on the terrestrial and aquatic ecosystems, including the possible effects on economically important species;
- (c) the possible effects of climatic, physiographic and ecological changes on the socio-economic structures and activities; and
- (d) areas or systems which appear to be most vulnerable to the expected impact.

This overview is a summary of the highlights of written submissions by Task Team members (Appendix I).

Due to the present imprecise nature of information on some aspects of global climate change and the rapidly evolving work of Working Group I of the Intergovernmental Panel on Climate Change (IPCC) which is yielding new estimates of both the expected global warming and sea-level rise, it must be stressed that the assumptions underlying the work of the Task Team, are those accepted at the UNEP/ICSU/WMO International Conference in Villach, 9-15 October 1985, i.e. increased global mean temperature of 1.5-4.5°C and sea-level rise of 20-140 cm before

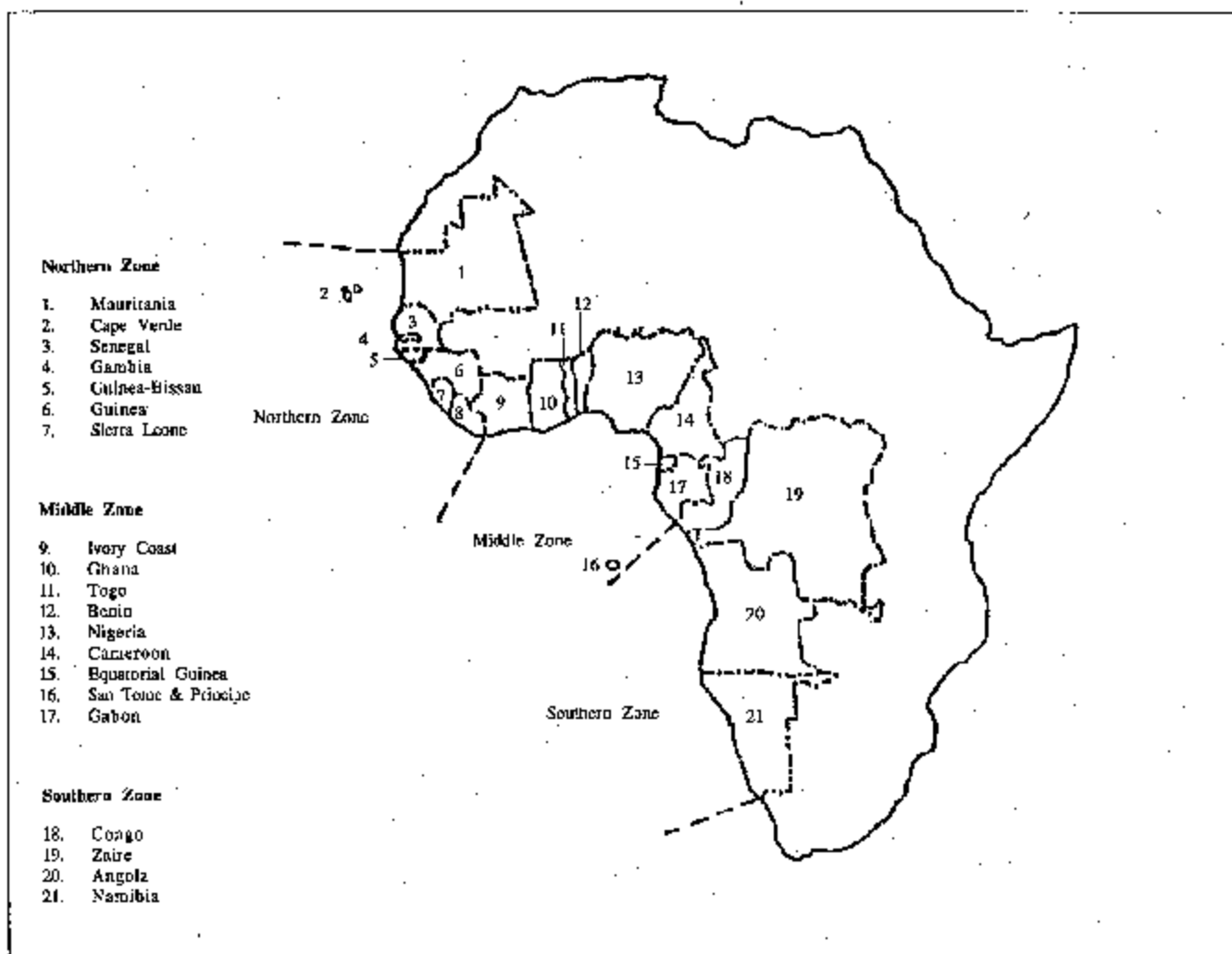


Figure 1: Countries and zones of the WACAF Region

The purpose of this overview is to draw the attention of countries in the region to the problem associated with expected climate change and to prompt their involvement in the development of technical and policy measures suitable for application in the West and Central African Region.

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